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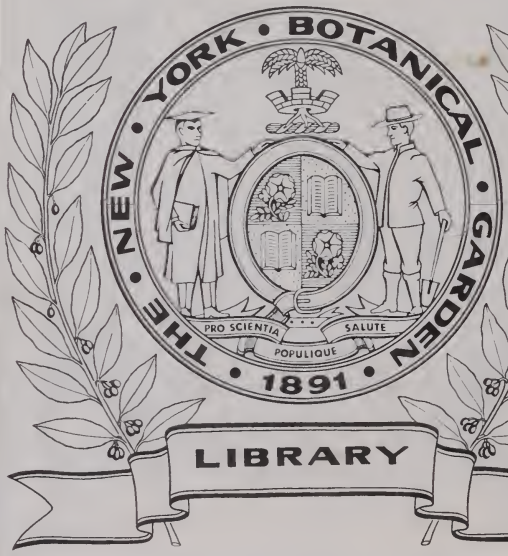
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SYNOPSIS

FILICUM AFRICÆ AUSTRALIS;

OR,

AN ENUMERATION OF THE SOUTH AFRICAN FERNS HITHERTO KNOWN.

BY

L. PAPPE, M.D.,

AND

THE HON. RAWSON W. RAWSON, ESQ.

CAPE TOWN:

SAUL SOLOMON AND CO., STEAM PRINTING OFFICE.

1858.

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INTRODUCTION.

§ 1. The natural family of Ferns comprises cryptogamic, mostly perennial, plants, the leaves or fronds of which are, in the early stage of their growth, coiled up in a particular way, so as to represent a scroll. Their fronds show a great variety of form and texture, and generally bear on the veins of the under surface, or along their edges, the organs of the fructification.

§ 2. These consist of *capsules* or spore-cases *(sporidia)*, which burst in various ways, and are either continuous, spread about irregularly, grouped together in heaps *(sori)*, or more rarely collected into spikes or racemes, formed by the contraction of part of the frond.

§ 3. These capsules are one-celled, stalked or sessile, generally surrounded by an articulated elastic ring, and discharge, when mature, the *spores*, or minute seeds, which they contain. The *sori* or clusters of sporidia are, in a great many genera, protected by a peculiar membrane, or scale, called the *indusium* or involucre, which is deciduous or persistent, derives its origin from the epidermis of the frond, and covers the sori entirely or in part; while in other cases, the borders of the frond, being dilated and reflexed, perform the function of that membrane.

§ 4. The Ferns arise from a subterraneous root-stock *(rhizome)*, which for the most part is creeping and of a woody nature. Their stem, or that portion of the rhizome which rises above ground *(caudex)*, is almost ever upright and simple, and but rarely climbing *(Stenochlæna Meyeriana)*, or branched (*Gleicheniaceæ*). It is very short, and nearly wanting

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in some species, yet becomes arborescent in others, and often attains a considerable height (*Cyathea, Alsophila*). This caudex, which is hollow within, and not possessed of a fibrous inner bark (*liber*), is generally hard from without, and of a glossy appearance. Both the root-stocks and the stems of some of these plants contain peculiar resinous substances which have anthelmintic properties, and serve as vermifuges, (*Lastrea athamantica*, etc.,)—a fact, already known to the ancients.—Theophr. Hist. Plantar, 18, 8.

§ 5. In the formation of the leaves, nature has displayed her wondrous charms. These leaves are called *fronds* by botanists, and are either stalked, or more rarely sessile, or sometimes jointed to the caudex, or root-stock, by articulations. They are persistent and evergreen within the tropics and temperate zones, but deciduous in cold climates, in which case the frond is yearly renewed. Their texture is herbaceous, membranaceous, or leathery; their upper surface, generally dark, smooth, glazed or shining; the under side, on the contrary, paler, very veiny, often clothed with short hair, and furnished with minute breathing pores (*stomata*). In a few genera, only, both surfaces are nearly alike (*Vittaria, Hymenophylleæ*). The fronds are rarely simple and entire, much oftener lobed, digitate, or pinnatifid, but mostly pinnate or further divided. Their *pinnæ* and *pinnules*, again, are entire, notched, sawed, toothed, incised, or pinnatifid, and frequently unequally shaped at their bases.

§ 6. The *stipes*, which in this family represents the leaf-stalks of phanerogamous plants, is connected with the stem or the rhizome by articulation. It is of different size: almost wanting in some species, or of considerable length in others; mostly herbaceous, but sometimes woody, and covered by an epidermis, which in the course of growth becomes brittle, glossy, and of a dark-brown or blackish hue. The continuation of the stipes through simple fronds goes by the name of rib, or *costa*, while its further ramifications in pinnated fronds are called *rachises*.

§ 7. The root-stocks, stems, stalks, and rachises of Ferns are often clothed, especially in their youth, with a peculiar kind of deciduous, membranaceous, chaffy scales, which are decidedly hygroscopical (absorbing water), scarious, dispersed, or imbricated, erect, twisted, filiform, lanceolate, oval, etc., and of a brown, black, or yellow colour. They are called *Paleæ*, differ in size, and their edges are either entire, sawed, fringed, or irregularly torn.

§ 8. The process of fecundation in this family of plants has been the speculative task of many naturalists. Some skilful hypotheses have been advanced on the subject by eminent authors, in order to establish sexuality amongst them; but as nature has mysteries of her own to hide from mortal view, so these theories, however intelligent, are only to be looked upon as ingenious suppositions. That young Ferns may be reared from spores, or seeds, is sufficiently known, as well as that some of them are propagated by leaf buds. (*Asplenium gemmiferum.*)

§ 10. For the purpose of systematic classification, the filical tribe has been divided into *sub-orders*, the chief characters of which are to be found in the construction, shape, dehiscence, or position of the *sporidia;* the presence or absence of an *involucre*, the form of the *spores*, the vernation, etc. In *Hymenophylleæ* (small Ferns with very delicate, almost transparent, fronds, *without stomata*), the marginal spore-cases are placed upon the top of an extended vein, and covered with a cuplike involucre, formed by the lobes of the frond; while the capsules in *Ophioglosseæ* are spiked on the margin of a contracted leaf, possess no ring at all, and have a straight vernation.

§ 11. If the graceful Fern trees of tropical or sub-tropical climes approach *Cycadeæ*, and remind us of the majestic growth of *Palms*, then the small order of *Lycopodiaceæ* or club-mosses show, in the structure and shape of their leaves, an affinity to the muscal alliance. These plants form indeed a family of their own, but are commonly classed with Ferns as

an intermediate group. They have creeping or erect stems; their leaves are small, sessile, whorled, or imbricated, and their fructification, which is spiked or axillary, consists of bivalved cases, containing minute powdery spores. Of this order, but few representatives are known to inhabit South Africa.

§ 12. In most true Ferns, but especially in the dorsiferous ones, the peculiar course, position, distribution, and ramification of the nerves and veins, placed at the back of their fronds, are highly important for the supply of superior *generic characters*, being, as they are, closely connected with the insertion of the organs of fructification. They, therefore, are very valuable also in the arrangement of fossile Ferns, which, as we learn from geology, abounded in great number and variety during the carboniferous epoch of the earth, and of which some hundred species, belonging to different genera, have been described.

§ 13. Although Ferns exist in nearly all parts of the globe, yet countries situated within or somewhat beyond the tropics, seem to be most genial to their growth and development. They generally delight in warm, moist, shady localities, and thrive best in woody, mountainous regions. In the western districts of the colony of the Cape of Good Hope they are proportionally rare for that reason, but increase in species towards the east, and become frequent and distinct in the dense woods, mountain ravines, and near the cascades of Natal. The aboriginal forests of British Kaffraria, as yet unexplored, undoubtedly conceal strange forms, quite new to the scientific world.

§ 14. If we estimate (by moderate calculation) the entire number of South African plants at about 12,000 species, out of which one thousand, at least, are cryptogamic or cellular, it then becomes apparent, that the Ferns are but poorly represented in this great and imposing assemblage, forming hardly one-sixtieth part of the whole Flora, and scarcely one-fifth part of the plants of the lower classes, known to exist in so wide and rich a tract of territory.

§ 15. It is rather remarkable that, up to this date, not one single genus of Ferns has been discovered which could be said to be exclusively peculiar to this country, while even eighty-eight of the species described in this treatise, or about the half of them only, could claim that privilege. The rest of them are widely diffused, for we find thirty-one out of the number inhabiting the Mascarenhas (Mauritius and Reunion). Fifteen are found in Europe; fifteen grow in the West Indies, eleven in New Holland, ten in North America, nine in South America, eight in the Brazils, seven in the East Indies, six in the barren island of Tristan d'Acunha, six in the Canaries and Azores, five at Java, five in Central America, five in the north of Asia, six in the Sandwich Islands, three in North Africa, two in New Zealand and Tasmania, two at Luzon, one in Amboyna, Singapore, Fernando Po, China, and Japan. The rare *Cyrtomium falcatum*, a native of the lastnamed country, has but recently been found by Capt. Espinasse in the forests of British Kaffraria.

§ 16. Collectors of Ferns should not be satisfied with gathering fertile specimens alone, but secure, in like manner, sterile fronds and young shoots, which often greatly differ from perfect plants in their general aspect. The root-stocks and caudices also are of importance, and ought to be preserved.

§ 17. To persons who take an interest in the natural history of South African Ferns, a short review of the principal works treating on that topic may be acceptable. Thunberg,* whose writings on the Flora of this country are invaluable, described only thirteen genera and twenty-nine species of Ferns as indigenous. At a later period, Professor de Schlechtendal, encouraged by the examination of the valuable collections brought home by several zealous botanical travellers, and deposited in the Royal Herbarium of Berlin, issued a work on South African Ferns.†

* Prodromus Plantarum Capensium, 2d volume. Upsalæ, 1800, 8vo., and Flora Capensis, ed. Schultes, Stuttg. 1823, 8vo.

† Adumbratio Filicum in Promontorio Bonæ Spei provenientium. Part 1-5, Berl. 1825–26, 4to., with 24 engraved plates.

Here the author not only gives his own elaborate descriptions of many new, rare, or little known species, but also inserts Dr. Schrader's remarks on Cape Ferns, hitherto concealed in a learned periodical,* little accessible to botanical students. This important publication, which unhappily has been left unfinished, contains the descriptions of twenty-three genera and sixty-nine species. The latest monograph on the subject we owe to the pen of one of the ablest Pteridologists of our time. The rich collections made in this country by Ecklon and Zeyher, Drege, Gueinzius, and others, supplied the late and much lamented Professor Kunze (of Leipzic) with ample materials for his treatise on South African Ferns. This appeared under the title of "Acotyledonearum Africæ Australioris recensio nova. I. Filices, in the Linnæa † for 1836 and 1844, and contains thirty-three genera and one hundred and eleven species, many of which were perfectly new. Some of them are also figured in Kunze's continuation of Schkuhr.‡ Since then, the number of South African Ferns has been on the increase, a fact borne out by the contents of the following pages.

* Gœttinger gelehrte Anzeigen, 1818.

† Linnæa. Ein Journal für die Botanik in ihrem ganzen Umfange.

‡ G. Kunze, Die Farrnkraeuter in colorirten Abbildungen. Leipz. 1840 sq. 4to.

AN ENUMERATION

OF THE

SOUTH AFRICAN FERNS.

SYNOPSIS OF SOUTH AFRICAN GENERA OF FERNS.

The classification adopted in the following description is mainly that established by Professor Presl, in his admirable "Tentamen Pteridographiæ," published in 1836, and followed by Sir Wm. Hooker, in his exquisitely illustrated "Genera Filicum," published in 1842.

The latter author, in his subsequent, more detailed, work, commenced in 1846, under the title of "Species Filicum," has somewhat modified Presl's arrangement, and other later authors have introduced more extensive changes; but as none of these have been generally accepted, and as Sir Wm. Hooker's work on the species of Ferns is still incomplete, it has been deemed, preferable to adhere generally to the classification of Presl.

This author excludes from the order of Ferns (Filices) the group Hymenophylleæ of Endlicher, containing the two genera of Hymenophyllum and Trichomanes, which Sir William Hooker has restored, placing them between the tribes Dicksoniaceæ Pr., and Davalliaceæ Pr. He also excludes the order of Lycopodiaceæ, and others akin to, but not comprised in, the order of "Filices." The same arrangement will be adopted in the following synopsis.

Presl admitted two sub-orders, established by Bernhardi, dependent upon the character of the elastic ring surrounding the capsules (sporangia), viz., Helicogyratæ, having an eccentric ring, and Cathetogyratæ, having a marginal ring seldom complete. The former embraces only the first two tribes of the order. The distinction cannot easily be detected without a magnifying glass, and need not be attended to in a study of the Ferns of South Africa.

ORDER FILICES.

SUB-ORDER, HELICOGYRATÆ.

TRIBE 1.

Gleicheniaceæ. Kunze. *Fronds* creeping, spreading, generally dichotomous, pinnate, coriaceous, with gemmæ in axils. *Pinnules* small, linear. *Involucre* none. *Sori* globose, solitary or few.

Gen. 1.—*Gleichenia.* Swartz. *Sori* immersed.

Gen. 2.—*Mertensia.* Willd. *Sori* superficial, on a raised dotlike receptacle.

To this tribe belong the genera Platyzoma, Brown, and Calymella, Presl, which are not, as far as is known, represented in South Africa.

TRIBE 2.

Cyatheaceæ. Endlicher. *Plant* arborescent. *Stem* erect. *Involucre* cup-shaped, inferior, or wanting.

Gen. 1.—*Cyathea.* Smith. *Sori* on fork of veins, with an involucre.

Gen. 2.—*Alsophila.* Br. (Hemitelia, Presl). *Sori* at base of veins, with spurious involucre.

Schizocæna, I. Smith., Cnemidaria, Pr., Trichopteris, Pr., Metaxya, Pr., and Gymnosphæra, Blume., are not represented in South Africa.

SUB-ORDER CATHETOGYRATÆ.

GROUP 1, having an involucre (true or spurious.)

TRIBE 1.

Peranemaceæ. Pr. *Sori* globose, pedunculate, or on middle of superior veinlet. *Involucre* inferior, covering the *sori.*

This tribe, containing Peranema, Don., Diacalpe Blume, Woodsia, Br., and Hypoderris, Br., is not represented in South Africa.

TRIBE 2.

Aspidiaceæ. Pr. *Sori* globose, on middle, seldom on apex, of veins. *Involucre* superior, free, except at point of insertion; deciduous. *Rhizome* creeping, or sub-globose.

SECT. 1.—*Nephrodiariæ.* Pr. *Involucre* kidney-shaped.

Gen. 1.—*Lastrea.* Pr. *Veins* simple or forked.

Gen. 2.—*Oleandra.* Cavanilles. *Veins* numerous, close, parallel; root creeping.

Gen. 3.—*Nephrodium.* Schott. *Lower veins* arching.

Nephrolepis, Schott is not represented in South Africa.

Sect. 2.—*Aspidiariæ.* Pr. *Involucre* round or elliptic; entire.

Gen. 1.—*Polystichum.* Schott. *Sori* round; *veins* simple or forked; *fronds* coriaceous.

Gen. 2.—*Cyrtomium.* Pr. *Sori* round; *veins* irregularly reticulate.

Gen. 3.—*Didymochlæna.* Desvaux. *Sori* elliptic; sub-immersed.

Phanerophlebia., Pr., Cyclodium, Pr., Sagenia., Pr., Fadyenia., Hooker., Mesochlæna., Br., Aspidium., Schott, Pleocnemia., Pr., and Matonia., Br., are not represented in South Africa.

TRIBE 3.

Aspleniaceæ. Pr. *Sori* globose, oblong, or linear, on back of veins. *Involucre* suborbiculate, or linear, lateral, persistent, skinny; free at margin opposite point of insertion. *Rhizome* globose, seldom creeping.

Sect. 1. *Cystopterideæ.* Pr. *Sori* globose. *Involucre* suborbiculate, becoming reflex and wrinkled.

Gen. 1.—*Cystopteris.* Bernh. *Sori* on middle of veinlets.

Acrophorus, Pr., Leucostegia, Pr., and Onoclea., Linn., are not represented in South Africa.

Sect. 2. *Blechnaceæ.* Pr. *Sori* oblong, short, or linear long. *Involucre* corresponding, flat.

Gen. 1.—*Athyrium.* Roth. *Sori* oblong, short, curved, on middle of veins.

Gen. 2.—*Blechnum.* L. *Sori* linear, contiguous or confluent, on transverse veinlets uniting veins, parallel to rachis.

Woodwardia, Sw., Doodia, Br., and Salpichlæna, I. Sm., are not represented in South Africa.

Sect. 3. *Aspleniariæ.* Pr. *Sori* linear, long, in some species (Cænopteris, Bernh., or Darea, Auct), marginal or sunk in margin. *Involucre* corresponding, flat.

Gen. 1.—*Asplenium.* L. *Sori* linear, long. *Involucre* lateral on vein.

Gen. 2.—*Ceterach.* Willd. The same, with underside of *frond* densely covered with scales.

Plenasium, Pr., Allantodia, Br., Neottopteris, I. Sm., and Hemidictyum, Pr., are not represented in South Africa.

Sect. 4. *Diplazieæ.* Pr. *Sori* linear, long, the lowest upper, and sometimes all, bilateral or double.

This tribe, containing Diplazium, Sw., Anisogonium, Pr., Digrammaria, Pr., and Oxygonium, Pr., is not represented in S. Africa.

Sect. 5. *Scolopendrieæ.* Pr. *Sori* linear, long, opposite, on adjoining opposite veins. *Involucre* corresponding, flat, open sides facing one another.

Gen. 1.—*Scolopendrium.* Sm. *Veins* close and parallel.

Antigramma, Pr., and Camptosorus, Link., are not represented in South Africa.

TRIBE 4.

Davalliaceæ. Gaudichaud. *Sori* infra-marginal, globose or linear, on ends of veins or veinlets. *Receptacle* dot-shaped, club-shaped, or linear. *Involucre* lateral, semi-orbiculate, oblong, or linear, persistent, skinny, free at upper margin. *Rhizome* sub-globose, or creeping.

Sect. 1. *Davallieæ.* Pr. *Sori* globose or longitudinally linear. *Involucre* semi-orbiculate or longitudinally linear.

Gen. 1.—*Microlepia.* Pr. *Sori* removed from margin. *Involucre* truncated, covering half the sorus.

Gen. 2.—*Davallia.* Sm. *Sori* infra-marginal, on back of teeth or sinus.

Saccoloma, Kaulf., Humata, Cav., and Loxsoma., A. Cunningham, are not represented in South Africa.

Sect. 2. *Lindsæaceæ.* Pr. *Sori* transversely linear, sub-marginal, generally continuous. *Involucre* lateral, linear, thin, membranaceous, free towards margin.

Gen. 1.—*Lindsæa.* Dryander. *Sori* and *involucre* continuous, parallel to margin. *Veins* much forked.

Isoloma, I. Sm., Schizoloma, Gaudich., Synaphlebium, I. Sm., and Dictyoxyphium, Hook., are not represented in South Africa.

TRIBE 5.

Dicksoniaceæ. Pr. *Sori* globose, sub-marginal on end of veins or veinlets. *Receptacle* globose. *Involucre* lateral,

persistent, bivalve; the true one being the lower valve, affixed laterally by semi-circular line, the accessory one being like a cap, formed of teeth of frond, and covering the sori.

This tribe, containing Balantium, Kaulf, Cystodium, I. Sm., Culcita, Pr., Leptopleuria, Pr., Dicksonia, Pr., Patania, Pr., Cibotium, Kaulf., Thyrsopteris, Kze., and Deparia, Hookeri, is not represented in South Africa.

TRIBE 6.

Adiantaceæ. Pr. *Sori* linear, or oblong, or globose; marginal, seldom sub-marginal; fixed on underside of involucre, springing from end of veins or veinlets. *Receptacle* linear or dot-shaped. *Involucre* formed of reflexed margin, bearing the capsules, linear, oblong, semi-orbiculate, or semi-lunate.

SECT. 1. *Adiantariæ.* Pr. *Sori* separate, but soon confluent, covering the margin of the whole pinnæ, on edge of teeth or segments.

Gen. 1.—*Pteris.* L. *Sori* linear, marginal, continuous. *Veins* simple or forked. *Involucre* broad.

Gen. 2.—*Lomaria.* Willd. *Fertile frond* contracted; *veins* ditto; *sori* sub-marginal.

Gen. 3.—*Campteria.* Pr. Like *Pteris,* but lower veins anastomosing and arching at sinus.

Gen. 4.—*Allosorus.* Bernh. *Sori* roundish, separate, then confluent and linear, hid by folded margin and involucre.

Gen. 5.—*Cryptogramma.* Br. *Sori* linear, on oblique veins, hid by folded margin; no involucre.

Gen. 6.—*Adiantum.* L. *Sori* marginal, globose, kidney-shaped, oblong or linear; distinct, or confluent, or continuous. *Involucre* corresponding to sori, formed of reflexed margin of underside of frond, and bearing the capsules beneath.

Gen. 7.—*Cheilanthes.* Sw. *Sori* marginal, globose, generally upon a lobe or tooth of the margin of frond, which becomes reflexed, solitary, contiguous or confluent. *Involucre* kidney-shaped or oblong.

Haplopteris, Pr., Litobrochia, Pr., Amphiblestra, Pr., Ceratodactylis, I. Sm., Onychium, Kaulf., Jamesonia, Hook. *et* Greville, Hewardia, I. Sm., and Ochropteris, I. Sm., are not represented in South Africa. Platyloma, I. Sm., is included in Allosorus, Bernh., and Cassebeera, Kaulf., in Cheilanthes, Sw.

Sect. 2. *Lonchitideæ.* Pr. *Sori* globose or linear, occupying sinus of teeth and segments. *Involucre* semi-lunate or linear, marginal.

Gen. 1.—*Hypolepis.* Bernh. *Sori* punctiform, sub-globose. *Veins* simple or forked.

Gen. 2.—*Lonchitis.* L. *Sori* linear, semi-lunate. *Veins* anastomosing.

GROUP 2, having no involucre. *Sori* naked.

TRIBE 7.

Vittariaceæ. Pr. *Sori* sunk in margin, linear, or globose. *Rhizome* creeping.

Gen. 1.—*Vittaria.* Sm. *Sori* linear. *Frond* simple, linear.

Prosaptia, Pr., (a doubtful genus) is not represented in South Africa.

TRIBE 8.

Polypodiaceæ. Pr. *Sori* globose on apex or back of veins in disc of frond; seldom confluent. *Receptacle* dot-shaped. *Rhizome* creeping, seldom sub-globose.

Sect. 1. *Struthiopterideæ.* Pr. *Fertile fronds* contracted.

This tribe, containing only one genus, Struthiopteris, Willd., is not represented in South Africa.

Sect. 2. *Polypodieæ.* Pr. Margin of frond uniform with disc, flat. *Fronds* often simple or digitate.

Gen. 1.—*Polypodium.* Lin. *Sori* at end of simple or forked veins, or on mid-veins or veinlets.

Gen. 2.—*Goniopteris.* Pr. *Sori* on mid-veins; first four opposite veins anastomosing in acute angled arch.

Gen. 3.—*Marginaria.* Bory. *Sori* 1-3 serial, at end of primary, or secondary, veinlets, in hexagonal maculæ.

Gen. 4.—*Pleopeltis.* Humboldt and Bonpland. *Sori* large, serial, veinlets anastomosing, the middle maculæ containing two or three secondary veinlets, making an oblong macula, bearing sorus at the end. Pedicellated scales in sorus.

Gen. 5.—*Phymatodes.* Pr. *Veins* anastomosing, secondary veinlets clubbed. *Sori* at end of veinlets.

Gen. 6.—*Niphobolus*. Kaulf. *Sori* multi-serial, contguous, covering upper part of frond.

Stenosemia, Pr., Goniophlebium, Pr., Campyloneurum, Pr., Dictyopteris, Br., Phlebodium, Br., Aglaomorpha, Schott., and Dryostachyum, I. Sm., are not represented in South Africa.

Sect. 3.—*Lecanopterideæ*. Pr. *Sori* sub-globose, sub-marginal in the teeth of the frond, extended into broad cartilaginous lobes, bearing the sori.

This tribe, containing only one genus, Lecanopteris, Bl., is not represented in South Africa.

TRIBE 9.

Grammitaceæ. Pr. *Sori* linear long, seldom linear oblong, short, on back of veins or veinlets. *Receptacle* linear. *Rhizome* creeping or sub-globose.

Sect. 1.—*Grammitideæ*. Pr. *Sori* on back of simple veins, or of upper veinlet, or of one secondary veinlet.

Gen. 1.—*Grammitis*. Sw. *Sori* small on mid-veins, or upper veinlets.

Synammia, Pr., Monogramme, Schkuhr., Stegnogramme, Bl., Meniscium, Schreber., Microgramma, Pr., Loxogramme, Pr., Polytænium, Desv., Antrophyum, Kaulf., Diblemma, I. Sm., and Selliguea, Bory., are not represented in South Africa.

Sect. 2.—*Hemionitideæ*. Pr. *Sori* confluent on all the veinlets of branching veins, long, linear, narrow.

Gen. 1.—*Gymnogramma*. Desv. *Sori* small and covering frond.

Hemionitis, L., is not represented in South Africa.

TRIBE 10.

Tænitideæ. Pr. *Sori* linear, generally continuous, on veins, veinlets, or parenchyma, or extending to the rib on each side laterally, or on the mid disc of each side, or on margin of frond. *Rhizome* sub-globose, or creeping. *Frond* often simple.

Gen. 1.—*Notholæna*. Br. *Sori* linear, marginal, continuous; sometimes with a narrow revolute margin.

Gen. 2.—*Pteropsis*. Desv. *Sori* linear, sub-marginal. *Receptacle* elevated.

Pleurogramme, Pr., Jenkinsia, Hook., Tæniopteris, Hook , Tænitis, Sw., Lomagramma, I. Sm., and Drymoglossum, Pr., are not represented in South Africa.

TRIBE 11.

Acrostichaceæ. Pr. *Sori* superficial, covering the whole of the underside of frond. *Fertile frond* generally contracted. *Rhizome* creeping or sub-globose.

Gen. 1.—*Stenochlæna.* I. Sm. *Fertile frond* contracted, with revolute margins.

Gen. 2.—*Olfersia.* Raddi. *Fertile frond* contracted, with flat margin. *Veins* of sterile frond parallel, close.

Gen. 3.—*Acrostichum.* L. *Fertile frond* not contracted. *Veins* anastomosing regularly in long hexagons.

Polybotrya, Humb. and Bonp., Elaphoglossum, Schott., Aconiopteris, Pr, Campium, Pr., Platycerium, Desv., Pæcilopteris, Pr., Gymnopteris, Bernh., and Photinopteris, I. Sm., are not represented in South Africa.

TRIBE 12.

Hymenophylleæ. Endlicher. *Sori* marginal, lateral or terminal, at end of vein. *Involucres* monophyllous. *Receptacle* elongated, columnar, or filiform. *Capsules* sessile, covering more or less the receptacle. *Caudex* creeping, filiform, slender.

This tribe, "chiefly founded upon the complete transverse ring of the capsules, the very much elongated, columnar or filiform receptacle, and the delicate texture of the frond," is placed by Sir W. Hooker next to the genus Loxsoma, in his tribe Dicksoniaceæ.

Gen. 1.—*Hymenophyllum.* Sm. *Receptacle* generally included. *Involucre* bivalved, cup-shaped, or orbicular.

Gen. 2.—*Trichomanes.* Linn. *Receptacle* generally exserted. *Involucre* tubular, sub-cylindrical, generally entire.

ORDER PARKERIACEÆ. Hook. *Aquatic Ferns*, with spore cases very thin, surrounded by a broad, imperfect, or obsolete ring.

This order, containing Ceratopteris, Brongniart, and Parkeria, Hook., is not represented in South Africa.

ORDER SCHIZÆACEÆ. Mart. *Spore cases* dorsal, with a complete terminal contracted ring. *Spores* pyramidal or conical.

Gen. 1.—*Schizæa.* Sm. *Spore cases* oval, sessile, vascular, reticulate, placed on linear or pinnated appendages.

Involucre formed of reflexed margin. *Fronds* cæspitose, linear, simple or dichotomous.

Gen. 2.—*Anemia.* Sw. *Spore cases* the same, placed on one-sided spikes, densely panicled, biserial. No *involucre.* Fertile portion of *frond* dissimilar.

Gen. 3.—*Mohria.* Sw. *Spore cases* sub-globose, sessile, reticulate, placed near concave margins of under side of frond. *Fertile frond* partially contracted.

Actinostachys, Wallich., Lygodictyon, I. Sm., Lygodium, Sw., Anemidictyon, I. Sm., and Trochopteris, Gardner, are not represented in South Africa.

Order OSMUNDACEÆ. Mart. *Spore cases,* dorsal or panicled, stalked, with a broad dorsal incomplete ring.

Gen. 1.—*Osmunda.* Linn. *Spore cases,* heaped on lateral or terminal pinnæ, contracted.

Gen. 2.—*Todea.* Willd. *Spore cases,* heaped on veins, upon under side of frond, thickly or thinly spread.

Order MARATTIACEÆ. Kaulf. *Spore cases,* without a ring, dorsal, combined in masses, and splitting by a central cleft.

Gen. 1.—*Marattia.* Sw. *Sori* oblong, sessile on forked veinlet, in single series, near the margin. *Involucre* coriaceous.

Eupodium, I. Sm., Angiopteris, Hoffmann., Danæa, Sm., and Kaulfussia, Bl., are not represented in South Africa.

Order OPHIOGLOSSEÆ. Br. *Spore cases,* ringless, distinct, bivalved, formed on margin of a contracted leaf.

Gen. 1.—*Ophioglossum.* Linn. Spike undivided in two rows.

Botrychium, Sw., and Helminthostachys Kaulf. are not represented in South Africa.

Order LYCOPODIACEÆ. Sw. *Spore cases* axillary, one to three-celled.

Gen. 1.—*Lycopodium.* Linn. *Spore cases,* 1 to 4-lobed, sessile; often in spikes.

Gen. 2.—*Psilotum.* Sw. *Spore cases,* 3-lobed, globose, sessile, solitary, at base of minute leaves.

Tmesipteris, Bernh., is not represented in South Africa.

SYNOPSIS OF SOUTH AFRICAN SPECIES OF FERNS.

I. GLEICHENIACEÆ. Kze.

I. GLEICHENIA. sw. (2 Species.)

1. *Gleichenia polypodioides.* Sw. *Frond* dichotomous, much branched, proliferous; *branches* pinnate, spreading; *pinnae* pinnatifid; *segments* ovate, more or less glaucous beneath, smooth; *capsules* 3-4, immersed on the underside of the frond, forming flat-topped *sori.* *Stipes* and *rachises* rather smooth. *Caudex* creeping.—Hook. Spec. Filic. vol. 1, p. 3, Schkuhr. Filic. t. 149.

Var. *glauca.* *Pinnae* somewhat longer and closer; fronds more glaucous beneath.

Common on Table Mountain, and in many parts of the Colony, and Natal.—*v. v.* & *s.**

2. *Gleichenia argentea.* Kaulf. *Fronds* dichotomous, branching; *branches* pinnate, spread; *pinnæ* pinnatifid; *segments* wedge-shaped, very blunt, rounded at the apex, silvery beneath; *rachises* clothed in a thick woolly ferruginous shag. *Capsules* about 4. *Caudex* creeping, surrounded with stellate bristly scales.—Kaulf, Enum. Filic., p. 36.

In moist shady places, amongst rocks on Table Mountain (Chamisso.), at Genadendal (Rev. C. R. Kölbing), near the Van Staden's River, Uitenhage (Ecklon and Zeyher), *v. s.*

II. MERTENSIA. WILLD. (1 Species.)

3. *Mertensia umbraculifera.* Kze. *Fronds* repeatedly dichotomous, much branched, pinnatifid; segments linear, comb-shaped, blunt or slightly pointed, glabrous above, and glaucous beneath; *ribs* and *rachises* clad with ferruginous woolly shag. *Stipes* long erect, channelled naked; *rhizome* horizontal, paleaceous.—Kze Linnæa., vol. 18, p. 116.

In British Kaffraria, and on the grassy banks of the Omnaroti River, Natal.—(Gueinzius.) *v. s.*

* V. V. and S.—Vidi vivam et siccam.

II. CYATHEACEÆ. ENDL.

III. CYATHEA. SMTH. *(Arborescent.)* (2 Species.)

4. *Cyathea Dregei.* Kze. Unarmed, *fronds* 2 pinnate, coriaceous ; *pinnules* lanceolate, pointed, deeply pinnatifid, smooth above, paler below, and rufo-tomentose on and near the *rachis* beneath; *segments* oblong-ovate, subfalcate, obtuse, entire or serrated; *sori* on the lower half of the segments immersed in rufous wool; *involucre* hemispherical, breaking irregularly; *Stipes* short, rough, scaly.—Hook. Spec. Filic., vol. 1, p. 23., Tab. 10, fig. B., and Tab. 17, fig. A. Kunze Linnæa, vol. 10, p. 551.

In forests near Bethel (Kaffraria), and the Magalisberg (Zeyher), in a rocky valley at the great cataract between Omzamwoobo and Omzamcaba (Drege), near the Moore River. (Natal. Plant.) *v. s.*

5. *Cyathea Burkei.* Hook. *Fronds* 2-pinnatifid, membranaceous; *pinnules* lanceolate, bluntly acuminate, 2-pinnatifid ; *rachis* partially woolly, smooth above ; *segments* oblong-ovate, obtuse, entire, the *costa* hairy at the base. *Sori* few, often solitary ; *involucre* globose, with an irregular opening at the top. *Stipes* tubercled with small prickles, and at its base, and that of the main rachis, clothed with glossy brown, chaffy scales.—Hooker Spec. Filic., vol. 1, p. 23, Tab. 17, B.

In forests at Magalisberg. (Zeyher.) *v. s.*

IV. ALSOPHILA. R. BR. *(Arborescent.)* (1 Species).

6. *Alsophila Capensis.* J. Smth.* Unarmed ; *fronds* 3-pinnate ; *pinnæ* lanceolate-acuminate, membranaceous, deeply pinnatifid ; *segments* narrow-oblong, acute falcate serrated (rachis and costa, with small deciduous scales), veins simple, or rarely forked. *Sori* cylindrical, generally solitary at the bases of the lowest veins, on the upper half of the segment.—

* Very curious leaflike appendages issue luxuriantly from the base of the stipes in this species. They are flaccid 3-pinnate *abortive fronds* six or eight inches in length. Their pellucid membranaceous *pinnæ* are dichotomously branched, and their narrow, linear acute lobes, forked, or irregularly split. Their appearance is that of a parasitical *Trichomanes* in its barren state; and they were described erroneously as Trichomanes incisum, by Thunberg and as T. cormophilum, by Kaulfuss.

Hook. Spec. Filic., vol. 1, p. 36. *Hemitelia Capensis.* R. Br. *Amphocosmia riparia.* Gardner. *London Journal of Botany,* vol. 1, p. 441, Tab. 12.

Common in the woody ravines and forests of South Africa.—*v. v.* and *s.*

III. ASPIDIACEÆ. Presl.

v. LASTREA. prsl. (7 Species.)

7. *Lastrea Thelypteris.* Prsl. *Fronds* pinnate; *pinnæ* pinnatifid, linear-lanceolate smooth; *segments* ovate, acute, nearly entire, the fertile-ones revolute. *Sori* marginal, contiguous, at length confluent. *Stipes,* with or without scales, downy at the apex. *Caudex* creeping. *Aspidium Thelypteris.* Sw. Schlecht. Adumbr. Filic. Capens, p. 23, Tab. 11.

In moist localities, near rivulets, in the Cape flats, on Devil's Mountain, near the Paarl, Swellendam, Tulbagh, Uitenhage, &c., also at Natal.—(*v. v.* and *s.*)

8. *Lastrea patens.* Presl. *Fronds* pinnate; *pinnæ* pinnatifid; *segments* subfalcate-lanceolate, acute, the lower ones of the inferior pinnæ pinnatifido-incised. *Sori* small, round, in a double line; upper portion of the *stipes,* costa, and rachises downy.—*Aspidium patens.* Sw. Schlecht, l. c., p. 22. Hook. Genera Filic., t. 45 a.

In shady localities, at the foot of Table Mountain (Kirstenbosch), and in the forests of Stellenbosch, George, Uitenhage, British Kaffraria, and Natal.—*v. s.*

* 9. *Lastrea Catoptera.* Nob. *Fronds* 2-pinnatifid; *pinnæ* stalked, distant, erect, oblong-lanceolate sharp-pointed; *pinnules* oblong, the lower ones blunt, deeply pinnatifid; *segments* ovato-oblong, subfalcate, obtuse sinuato-subdentate, downy on both sides; the basal-one triangular, wedge-shaped, decurrent. *Sori* sub-marginal; *rachis* and *stipes* downy. *Aspidium catopteron.* Kze. Linnæa., vol. 10, p. 550.

In the forests between Omzamcaba and Omzamwoobo, also at Koratra, Natal. (Drege. Gueinzius.) *v. s.*

10. *Lastrea inæqualis.* Presl. *Fronds* 2-pinnate, smooth; *pinnæ* confluent and pinnatifid at the apex, bipinnatifid at the base; *pinnules* oval, obtuse, obliquely cuneate, inciso-dentate

and pinnatifid. *Sori* solitary, distant. *Stipes* and *rachis* somewhat scaly; *rhizome* thick, creeping. *Aspidium inæquale.* Schlecht. l. c., p. 23, Tab. 12.

Moist and shady spots on Devil's Mount; at Hottentot's Holland, Swellendam (Voormansbosch), British Kaffraria, Natal, &c.—*v. v.* and *s.*

11. *Lastrea spinulosa.* Presl. *Fronds* 2-pinnate, erect, oblong-lanceolate; *pinnæ* elongated, oblique, opposite; *pinnules* oblong, acute, decurrent, inciso-serrate or pinnatifid, with sharp-toothed lobes. *Sori* round in a double row. *Stipes* slightly scaly.—*Aspidium spinulosum.* Sw. Schkuhr. Filic. T. 48.

In shady rocky localities in the Du Toit's Kloof, Swellendam (Drege.)

12. *Lastrea pentagona.* Moore. *Fronds* 2-pinnate coriaceous, smooth, ovato-pentagonal; *pinnæ* acuminate, the lower pairs triangular, unequal-sided; the *inferior pinnules* of the lowest pinnæ longest, pinnate with distant oblong-obtuse, duplicato-serrate decurrent secondary pinnules, with mucronate teeth; the *superior pinnules* and those of the upper part of the frond pinnatifid, with oblong mucronato-serrate lobes. *Sori* distinct, forming two lines near the mid-vein on the pinnules; *stipes* and *rachises* scaly.—Moore, p. 227. in Hook. Journ. of Botan., and K. G. Miscellany, vol. 5., p. 227.

In ravines and moist places near the Umvoti, Natal (Plant.)

* 13. *Lastrea athamantica.* Nob. *Fronds* 3-pinnate coriaceous, lanceolate, smooth, *pinnæ* ± stalked, oblong, acuminate. *Primary pinnules* sessile, ovato-oblong cuneate, at base decurrent; *secondary* falcate, blunt, veiny. *Sori* round, solitary. *Stipes* short, erect, flexuose, covered at base with long linear deciduous scales. *Aspidium athamanticum.* Kze. Linnæa, vol. 18, p. 123. *Lastrea Plantii* Moore in Hook. Journ. of Botan., etc., vol. 5, p. 226.

On grassy hills and in boggy localities at Natal (Gueinzius), and in deserted holes of the jackal near Moore River, Natal (Gueinzius, Plant.) *v. s.*

The natives, who call this fern *Umkomo-Komo* use its root-stock as a vermifuge, especially for the cure of the tape-worm.

VI. OLEANDRA. CAV. (1 Species.)

14. *Oleandra articulata.* Presl. *Fronds* simple, entire, lanceolate, acuminate, membranaceous; *Sori* round, scattered.

Stipes short, nodose, articulated ; *rhizome* horizontally creeping, climbing, clothed with numerous awl-shaped imbricated scales, which have a black spot at their bases. *Aspidium articulatum.* Sw. Kunze Linnæa, vol. 18, p. 123.

Climbing rocks in woody ravines in the Magalisberg (Zeyher), and in similar localities at Natal. (Gueinzius) *v. s.*

VII. NEPHRODIUM. SCHOTT. (2 Species.)

* 15. *Nephrodium Ecklonianum.* Nob. *Frond* pinnate, lanceolate, coriaceous; the *lower pinnæ* distant, almost opposite, the *upper ones* alternate, approximate; all shortly stalked, lanceolate, sharp-pointed, inciso-pinnatifid, bearing small scattered resinous dots on the under surface ; *segments* ovate, subfalcate, rounded ; *costæ* slightly scaly beneath, channelled above, and as well as the angular *rachis* downy. *Sori* nearly marginal, continuous ; *involucre* smooth. *Stipes* long, smooth ; *root-stock* covered with brown scales. *Aspidium Ecklonii.* Kze. Linnæa, vol. 10, p. 546.

Around the hot springs at Brandvalley (Worcester), at the Zwartkops River (Uitenhage), Van Staden's River, the Knysna, &c., also at Natal. (Plant) *v. s.*

* 16. *Nephrodium Plantianum.* Nob. (New Species.) *Frond* pinnate, oblong-lanceolate, coriaceous ; *pinnæ* shortly stalked, alternate, approximate, erect patent, lance-shaped, pinnatifid, smooth ; *segments* ovate, obtuse, notched ; *stipes* and *rachis* angular, naked.

In the dense forests of Natal. (Plant No. 341) *v. s.*

VIII. POLYSTICHUM. SCHOTT. (4 Species.)

17. *Polystichum pungens.* Presl. *Frond* 2-pinnate ; *pinnules* oblong-ovate, obliquely cuneate, auricled, subfalcate, acute, doubly inciso-dentate, teeth mucronate. *Sori* irregularly scattered. *Stipes* and *rachises* scaly. *Aspidium pungens.* Kaulf. Schlecht, l. c., p. 21, Tab. 10.

Common in shady moist places throughout the Colony. *v. v.* and *s.*

* 18. *Polystichum luctuosum.* Nob. *Frond* 2-pinnate, lance-shaped, coriaceous, smooth ; *pinnæ* alternate, stalked, patent, erect, lanceolate acute, pinnate, pinnatifid at the apex ; *pinnules* ovate-trapeziform subfalcate, aristato-serrate, mucronate, eared at base. *Sori* small ; *stipes* and *rachises* clothed

with blackish scales. *Aspidium luctuosum.* Kze., vol. 10, p. 548.

In a mountain kloof at Bedford (Dr. Atherstone) on the wood-clad mountains near Philipstown, Kat River (Bartels, Ecklon, and Zeyher), in the forests of British Kaffraria. (Captain Espinasse) *v. s.*

19. *Polystichum angulare.* Presl. *Frond* 2-3-pinnate, rigid, coriaceous, acuminate, glossy above, paler beneath; *pinnæ* alternate, distant, stalked, spreading, linear-lanceolate, acute, pinnate, pinnatifid at the apex, perfectly smooth; *pinnules* alternate oblong-lanceolate deeply incised, sharp-pointed, cuneate at the base, the lowermost lobe or segment 3-4 toothed, largest, eared. *Sori* small, solitary in the axils of the indentations. *Rachises* and the angular-furrowed *stipes* fringed sparingly with short scales. *Aspidium angulare.* Kitaibl.

In swamps near the Natal coast. (Gueinzius. Plant.) *v. s.*

20. *Polystichum coriaceum.* Schott. *Fronds* 3-pinnate, coriaceous; *pinnules* ovate, wedge-shaped at the base, bluntly serrate, smooth; lower-ones pinnatifid, upper ones confluent. *Sori* solitary, placed near the bases of the serratures. *Stipes* and margined *rachises* glabrous; *rhizome* thick, horizontally creeping, clothed with broad ferruginous scales. *Aspidium coriaceum.* Sw. Schkuhr, Filic., Tab. 50.

Common in moist woody localities all over the Colony, as well as in the forests of Kaffraria and Natal.—*v. v.* and *s.*

IX. CYRTOMIUM. PRESL. (1 Species.)

21. *Cyrtomium falcatum.* Presl. *Fronds* pinnate, smooth coriaceous; *pinnæ* shortly stalked, alternate, broad ovate, rounded at the base, falcate, acuminate, distant, blunt, repando-crenate or serrate, the terminal one tri-lobed. *Sori* globose, copious, scattered. *Stipes* scaly. *Aspidium falcatum.* Sw.

In the aboriginal forests of British Kaffraria. (Captain Espinasse, 1856.) *v. s.*

X. DIDYMOCHLÆNA. DESV. (1 Species.)

22. *Didymochlæna dimidiata.* Kze. *Frond* 2-pinnate, coriaceous; *pinnæ* approximate stalked, oblong-lanceolate, patent, erect; *pinnules* dimidiate obliquely ovate; the superior margin sinuato-crenate, revolute, soriferous; the inferior one entire, here and there bristly along the costa. *Stipes* and

rachises, fringed with ferruginous scales.—Linnæa, vol. 18, p. 122, Kunze Supplem. to Schkuhr's, Filic., T.84.

In moist shady ravines near the great cataract between the Omfondi and Togela Rivers, Natal. (Gueinzius.) *v. s.*

IV. ASPLENIACEÆ. Presl.

XI. CYSTOPTERIS. BERNH. (1 Species.)

23. *Cystopteris fragilis.* Bernh. *Fronds* lanceolate 2-pinnate, slender, smooth. *Pinnæ* ovate or lanceolate, toothed, lobed or pinnatifid. *Segments* more or less acute, entire or much dentate. *Sori* scattered, often crowded and almost confluent. *Rachis* winged. *Stipes* glabrous, scaly at base. Hook. Spec. Filic., vol. 1, p. 197. *Aspidium fragile.* Sw. Schkuhr. Icon. Filic. tables 54, 56.

In a mountain kloof near Bedford (Dr. Atherstone) and in shady places on the Kat River mountains. (Ecklon.) *v. s.*

XII. ATHYRIUM. ROTH. (1 Species.)

* 24. *Athyrium laxum.* Nob. (N. sp.) *Fronds* 2-pinnate, flaccid, membranaceous. *Pinnæ* alternate remote, ovate-lanceolate acuminate, smooth. *Pinnules* ovate-oblong, pinnatifid; their *segments* incised, serrate, acute. *Sori* round. *Rachises* flexuose, somewhat margined. *Stipes* long, chaffy only at the base.

In woods and shady places at Natal. (Gueinzius.) *v. s.*

XIII. BLECHNUM. LIN. (2 Species.)

25. *Blechnum radiatum.* Presl. *Fronds* much divided, radiating, stiff. *Segments* linear, erect, dichotomous, toothed at the apex, perfectly smooth. *Stipites* clustered, much longer than the fronds. *Rhizome* short, scaly at the base, *roots* fibrous. *Adiantum radiatum.* Kœnig. *Acropteris radiata.* Link.

On rocks at the Magalisberg (Zeyher), and in Griqualand. (Mr. Robt Moffatt.) *v. s.*

* 26. *Blechnum Atherstoni.* Nob. (N. sp.) *Frond* pinnate, coriaceous. *Pinnæ* alternate, rigid, sessile, sub-auriculate cordate, linear-lanceolate, acute, slightly waved at the margins.

Lower pinnæ remote. *Stipes* and glabrous *rachis* destitute of scales.

This species much resembles and stands close to Blechnum cartilagineum. Sw.

On the southwest of Graham's Town, near the blockhouse. (Dr. Atherstone, 1856.) *v. s.*

XIV. ASPLENIUM. LIN. (29 Species.)

27. *Asplenium gemmiferum.* Schrad. *Fronds* pinnate, smooth, membranaceous, often gemmiferous towards the apex. *Pinnæ* alternate stalked, lanceolate ovate, elongated, acute, crenate or sub-serrate, obliquely cuneate and decurrent at base. *Sori* oblong distant. *Stipes* channelled above and scaly below. *Caudex* paleaceous. *Roots* densely clothed with ferruginous shag. *Asplenium lucidum.* Schlecht. (not Forster), Adumbr., p. 25, table 14, f. 1.

In the dense forests of the Knysna, Tsitzikamma, and near the great cataract of the Omzamcaba River (Natal) *v. s.*

28. *Asplenium Prionites.* Kze. *Fronds* pinnate, ovate, oblong, coriaceous. *Pinnæ* alternate, stalked, patent, lanceolate, acuminate, cuneate at the base, sharply and unequally toothed, glabrous; the lowermost shorter, smaller, almost auricled. *Sori* oblong, cushioned, often irregular. *Stipes* angular, *rachis* winged at the apex, and both of them scaly. *Rhizome* creeping. Linnæa, vol. 10, p. 511.

In Blockhouse-kloof, near Graham's Town (Dr. Atherstone), and in the forests of Natal. (Drege, Gueinzius.) *v. s.*

* 29. *Asplenium discolor.* Nob. (N. sp.) *Fronds* pinnate lanceolate, elongated, acuminate, membranaceous smooth, sometimes gemmiferous. *Pinnæ* alternate, remote, stalked, patent, spreading, oblong-lanceolate, acute, sub-pinnatifid, dark green above, paler beneath, cuneate at base. *Segments* confluent at the apex, wedge-shaped, obtuse, 2-crenate recurved, the lowermost remote, decurrent, almost auricled. *Sori* linear-oblong. The channelled *stipes* and flexuose marginate *rachises* sparingly scaly. *Asplenium lucidum.* Schlecht., var. b. Adumbr., table 14, f. b.

In the forests of the Knysna (Miss Dalgairns), Albany (Dr. Atherstone), and in the mountain-woods near Philipstown, Kat River. (Ecklon and Zeyher.) *v. s.*

30. *Asplenium anisophyllum.* Kze. *Fronds* pinnate, linear-lanceolate, membranaceous. *Pinnæ* nearly opposite, smaller at both ends, ovate-lanceolate, acuminate, bluntly serrate and incised, upwardly truncate with an unequal base, wedge-shaped below, decurrent. *Sori* elliptical, scattered. *Stipes* and winged *rachis* scaly. Linnæa., vol. 10, p. 511.

In shady mountains near the fountains of the Kat River (Ecklon and Zeyher), in British Kaffraria (Capt. Espinasse), and near the great cataract between the Omzamwoobo and Omzamcaba Rivers, Natal. (Drege.) *v. s.*

31. *Asplenium brachyotus.* Kze. *Fronds* pinnate, lanceolate, acuminate, membranaceous. *Pinnæ* stalked lanceolate, more or less falcate, blunt, irregularly and obtusely 2-serrate, sub-auricled and truncate at the base. *Sori* oblong. The slender *stipes*, as well as the *rachises*, downy. *Rhizome* naked. Linnæa., vol. 10, p. 512.

Found in the same localities with the former. (Drege. Gueinzius.) *v. s.*

32. *Asplenium protensum.* Schrad. *Fronds* pinnate, erect, coriaceous. *Pinnæ* alternate, distant, patent, linear-lanceolate, acuminate, pinnatifid, unequally cuneate at base. *Segments* remote, oblong, obtuse, 2-3-toothed; the lowermost broadest, incised, nearly auricled. *Sori* numerous, oblong, at length confluent. *Stipes* and the under side of the *fronds* downy. Schlecht., Adumb., p. 20, tab. 16.

Near rivulets in the forests of the Knysna and the Dœkamma; near Graham's Town (Dr. Atherstone); also at Natal. *v. s.*

33. *Asplenium erectum.* Bory. *Fronds* pinnate, membranaceous. *Pinnæ* shortly stalked, lanceolate, sub-falcate, acuminate, bluntly serrate. *Upper pinnæ* cuneate with an unequal base, and auricled on the upper edge; lowermost remote, eared at both ends. *Sori* solitary, placed close to the costa *Stipes* margined, glossy, smooth. Schlecht., Adumbr., p. 28, tab. 15.

Common in moist, shady, rocky localities throughout the whole colony. *v. v.* and *s.*

* 34 *Asplenium Zeyheri.* Nob. (N. sp.) *Fronds* pinnate, membranaceous smooth. *Pinnæ* shortly petioled, alternate, sub-falcate, oblong-ovate, bluntly incised, cuneate at the base. *Segments* obtusely crenate; the lowermost remote, erect, ob-ovate, cuneate, rounded, notched, auricled. *Sori* elliptical, irregular, distant. *Rachis* and channelled *stipes* not margined,

glabrous. *Asplenium polymorphum.* Eckl. and Zeyh. Herb. (Asplenii erecti var. Kze, Linnæa, vol. 10, p. 513, in note.)

Amongst rocks, and in shady ravines, Uitenhage (Dr. Rubidge), near Philipstown, Kat River. (Eckl. and Zeyh.) *v. s.*

35. *Asplenium lunulatum.* Sw. *Fronds* pinnate, slender, curved. *Pinnæ* alternate, sub-sessile, patent, oblong-ovate, more or less falcate, blunt, notched, confluent at the apex, truncate and auricled at the base. *Sori* oblong, numerous. *Stipes* and *rachises* margined. Kze. Linnæa, vol. 10, p. 514.

In the woods near Uitenhage (Eckl. and Zeyh.); also at Kat River and Natal. (Drege.) *v. s.*

36. *Asplenium monanthemum.* Smth. *Fronds* pinnate, linear lanceolate, erect, smooth. *Pinnæ* oblong-trapeziform, sessile, blunt, truncate at the lower base; apex and upper margin crenate-serrate. *Sori* generally solitary, linear, sub-marginal. *Stipes* almost quadrangular, and, as well as the *rachis* black, polished. *Rhizome* tufted. J. E. Smith, Plant. Icon. inedit., tab. 73.

Common in shady places in many parts of the colony. *v. v.* and *s.*

37. *Asplenium ebeneum.* Ait. *Fronds* pinnate, smooth, linear lanceolate. *Pinnæ* sessile, oblong, obtuse; upper ones auricled, bluntly crenate at the margin; *lower pinnæ* cordate, hastate. *Sori* oblong, approximate. *Stipes* and *rachis* smooth, ebenous, glossy. *Rhizome* creeping. *Roots* fibrous.

In the forests of the Krakakamma, Uitenhage. (Eckl. and Zeyh.) *v. s.*

38. *Asplenium Trichomanes.* Lin. *Fronds* pinnate, slender, smooth. *Pinnæ* irregularly oblong-ovate, crenate, truncate and cuneate at the base, and obtuse at the apex. *Sori* linear, at length confluent, and placed in a single row on each side of the costa. *Stipes* and *rachis* purplish-black, glossy. Schkuhr., Filic., t. 74.

In rocky, shady places in the Du Toit's Kloof, Swellendam (Drege); near Bedford (Dr. Atherstone); in the Winterberg, Kaffraria. (Eckl. and Zeyher.) *v. s.*

39. *Asplenium dentatum.* Lin. *Fronds* pinnate, glabrous; *pinnæ* obovate-oblong, blunt, unequally cuneate and attenuate at base; irregularly and obsoletely toothed on the margins. Willd. Spec. Plant. vol. 5, p. 324.

Among rocks on the mountains of the Bosjesmansrand, Natal. (Dr. F. Krauss.)

40. *Asplenium præmorsum.* Sw. *Fronds* 2-pinnate, subcoriaceous; *pinnæ* pinnate, stalked, patent; *pinnules* alternate, oblong-cuneate, truncate, the extreme-one elongated, trifid, the lowermost erect, lobed, auricled, all of them inciso-serrate, striated. *Sori* linear; *rachises* flexuose, not margined; *stipes* channelled purple, fringed here and there with short downy scales. *Caudex* creeping, paleaceous; *roots* fibrous. Schkuhr. Filic., t. 29, fig. 1.

In the forests of the Tzitsikamma, Uitenhage. (Dr. Krauss) at Natal. (Gueinzius) *v. s.*

41. *Asplenium ruta muraria.* Lin. *Frond* 2-pinnate at the lower, singly pinnate at the upper portion; *pinnæ* stalked, opposite or alternate, remote; *pinnules* rhomboid-oblong, cuneate at base, blunt, striated; crenate and inciso-lobate. *Sori* confluent. *Stipites* aggregate, flaccid, flexuose, perfectly smooth. *Roots* filiform, clothed with ferruginous shag. Willd. Enum. Plant, vol. 5, p. 341. Schkuhr's Filic. tab. 80. b.

On the top of Muizenberg mountain, in crevices of rocks (Hon'ble R. W. Rawson, March, 1857.) *v. v.* and *s.*

42. *Asplenium furcatum.* Thbg. *Fronds* 2-pinnate; *pinnæ* lanceolate attenuated at the apex; *pinnules* distant, cuneate-lanceolate 3-fid and pinnatifid; *segments* inciso-serrate. *Sori* linear, confluent. *Stipes* and *rachis* clothed below with scaly down. *Caudex* thickly paleaceous; *rhizome* creeping.

Very variable in its forms, some of which have been described as distinct species.

In woods and shady localities; very common within the Colony and Natal. *v. v.* and *s.*

43. *Asplenium fimbriatum.* Kze. *Fronds* sub-2-pinnate, membranaceous, oblong, smooth; *pinnæ* distant, stalked, ovate-rhomboidal; *pinnules* obovate-cuneate, with a cartilaginous edge, and elevated veins on the upper surface, incised and lobed at the apex; *segments* curved, apiculate; *involucres* membranaceous; *sori* confluent; *rachises* and short *stipes* purplish; *rhizome* tufted, paleaceous. Kunze. Linnæa., vol. 18, p. 117.

On rocks in the woods between the Omfondi and Togela Rivers, Natal. (Gueinzius.) *v. s.*

44. *Asplenium cuneatum.* Lam. *Fronds* 2-pinnate, membranaceous, smooth; *pinnæ* stalked, pinnate, alternate; *pin-*

nules obovate-cuneate, blunt, unequally inciso-serrate, striate, auricled at base; *rachis* margined at its upper extremity. *Sori* linear, often confluent. Willd. Spec. Plant., vol. 5, p. 344.

In Blockhouse Kloof, near Graham's Town (Dr. Atherstone, also Ecklon and Zeyher), In the forests of Natal (Plant.); Kaffraria (Capt. Espinasse.) *v. s.*

45. *Asplenium solidum.* Kze. *Fronds* sub-2-pinnatifid, lanceolate coriaceous, smooth, glossy; *pinnæ* lanceolate-ovate, attenuated; *pinnules* and *segments* wedge-shaped, incised, armed with pungent teeth. *Sori* convex scattered. The margined *rachis* and furrowed *stipes* glabrous. *Caudex* creeping, scaly. Kze. Linnæa, vol. 10, p. 520.

In the vicinity of Algoa Bay (Forbes), on mountains near Ruigtevalley, amongst shrubs (Drege); near Alice, (Mr. Stewart) *v. s.*

46. *Asplenium splendens.* Kze. *Fronds* 2-pinnate, ovate, acuminated; *pinnæ* lanceolate, sharp-pointed, alternate remote, stalked; lower *pinnules* ovate-rhomboidal, cuneate at base, crenato dentate, more or less lobed and rounded at the apex; *terminal-one* elongated incised; all of them veiny, smooth and glossy above, clothed here and there with blackish scales at the underside. *Sori* irregular, linear; base of the *stipes*, and the *rachis* paleaceous. *Caudex* creeping. Linnæa, vol. 10, p. 516.

In the woods of the Krakakamma and Kat River. (Ecklon and Zeyher) at Natal. (Plant.) *v. s.*

47. *Asplenium Adiantum nigrum.* Lin. *Fronds* 2-3-pinnate coriaceous, glossy; upper *pinnæ* pinnatifid, uppermost confluent, lower ones 2-pinnatifid; *segments* obliquely cuneate, acutely toothed. *Sori* linear elongate, at length confluent. *Stipes* purple, ebenous. *Caudex* thick, tufted. Schlecht. Adumb. p. 31, Tab. 17. A. *argutum* Bory.

On walls, amongst rocks, &c., in many parts of the Colony.—*v. v.* and *s.*

48. *Asplenium aspidioides.* Schlecht. *Fronds* 2-3-pinnate smooth; *pinnæ* stalked, patent, lanceolate; *pinnules* ovate lanceolate, pointed, wedge-shaped and pinnatifid at the base; *segments* more or less 2-dentate. *Sori* solitary, oblong;

rachises and the angular, striped *stipes* scaly. Schlecht. Adumbr., p. 24, t. 13.

Within the Colony, at places unknown. (Bergius. Mundt.) and in a swampy forest near Port Natal. (Gueinzius.)

* 49. *Asplenium lobatum.* Nob., n. sp. *Fronds* 2-pinnate, membranaceous ; *pinnæ* alternate, shortly stalked, ovate-oblong, obtuse ; *pinnules* obovate-cuneate, inciso-crenate, the basal-one broader, remote, 3-lobed. *Sori* oblong-ovate, confluent; *partial rachises* margined, smooth ; *stipes* slightly scaly.

In woods of British Kaffraria (Captain Espinasse), Albany (Mr. Hutton and Dr. Atherstone), in the Tzitsikamma (Dr. Rubidge.) *v. s.*

* 50. *Asplenium gracile.* Nob. n. sp. *Fronds* 2-pinnate, membranaceous, smooth ; *pinnæ* alternate, stalked, patent, ovate-oblong, rounded at the apex; *pinnules* obovate-cuneate decurrent, bluntly incised, *upper-ones* confluent, *lowermost* broader, auricled, stalked. *Sori* solitary, remote, irregular, elliptical. The channelled *stipes* and flexuose winged *rachises* perfectly naked

In the primæval forests of Natal. (Gueinzius.) *v. s.*

51. *Asplenium Dregeanum.* Kze. *Fronds* pinnate linear-lanceolate, acute, membranaceous, smooth ; *pinnæ* alternate short-stalked, obliquely sub-ovate blunt, those of the *apex* smaller, cuneate-obovate ; all of them truncate and more or less auricled at the upper, quite entire at the lower base ; inciso-pinnatifid at top and the upper margin ; *segments* oblong, rounded, incised, the lowermost wedge-shaped, 2-3-fid. *Sori* solitary ; *stipes* short ; *rachis* partly flexuose, sub-margined, scaly. *Caudex* creeping. Kze. Linnæa, vol. 10, p. 517. Suppl. to Schkuhr, Tab. 27.

In a shady valley on a cataract near the Omzamcaba River, Natal. (Drege) *v. s.*

52. *Asplenium Thunbergii.* Kze. *Fronds* pinnate, linear lanceolate acuminated, membranaceous ; *pinnæ* alternate, ovate-oblong, deeply pinnatifid, erect, somewhat curved, blunt ; *segments* oblong-cuneate, entire ; lower ones 2-fid ; lowermost broad lobed. *Sori* solitary, linear-oblong, sub-marginal ; *stipes* short, channelled ; *rachis* margined. Kze. Linnæa, vol. 10, p. 517. *Cœnopteris auriculata* Thbg. *Darea auriculata* Willd.

In forests at Natal. (Gueinzius.) *v. s.*

53. *Asplenium Odontites.* R. Br. *Frond* pinnate; *pinnæ* alternate, lanceolate, acuminated, pinnatifid; *segments* remote, linear lanceolate, acute; the inferior ones 2-fid. *Sori* sub-marginal. R. Brown. Prodrom. Flor. Nov. Holland, p. 151. *Cænopteris Odontites.* Thbg. Schkuhr. Filic., tab. 82.

Found by Thunberg; locality not recorded.

54. *Asplenium stans.* Kze. *Frond* 2-pinnate, glabrous; *pinnæ* deeply pinnatifid, almost opposite; *segments* spathulate-linear, obtuse, lower ones 2-partite. *Sori* sub-marginal; *rachis* winged. *Stipes* compressed, nearly 4-angular, smooth. *Caudex* sub-globose, clothed with stiff, acute, imbricated, blackish-brown scales. Kunze. Linnæa., vol. 10, p. 521. *Cænopteris furcata.* Berg. *Darea stans.* Bory.

In the forests of Swellendam, George, Uitenhage, and Kaffraria. *v. s.*

55. *Asplenium rutæfolium.* Kze. *Fronds* 2-pinnate, smooth; *pinnæ* and *pinnules* alternate, remote; the inferior *pinnules* deeply pinnatifid; the middle ones 2-3-partite; terminal ones simple; *segments* linear, obtuse. *Sori* sub-marginal; *rachis* not winged. *Stipes* compressed, glabrous. *Caudex* paleaceous. Kze. Linnæa., vol. 10, p. 521. *Cænopteris rutæfolia.* Berg. *Darea rutæfolia.* Willd.

In the forests of Swellendam, George, Uitenhage, and Natal. *v. s.*

XV. CETERACH. WILLD. (3 Species.)

56. *Ceterach officinarum.* Willd. *Fronds* pinnatifid; the *segments* oblong, obtuse, thickly covered at the underside with entire, rufous scales. Willd. Spec. Plant., vol. 5, p. 136. Schkuhr. Filic. tab. 7, f. b.

In crevices of rocks near the Baviaan's River. (Krebs.)

57. *Ceterach capensis.* Kze. *Fronds* pinnate or pinnatifid, oblong, obtuse; the *pinnæ* and *segments* decurrent, ovate oblong, blunt, crenate, incised, sub-cordate at the auricled base, and clothed beneath (as well as the flexuose *rachis* and the *stipes*) with rufous scales. Kze. Linnæa, vol. 10, p. 496. *Gymnogramme cordata.* Hook. & Grev. Icon. Filic., tab. 156.

On rocks and walls near Cape Town; also at the entrance of the forests near Olifant's Hoek and Bushman's River (Uitenhage); at the stems of old trees in Albany; at the Kat River, etc. *v. v.* and *s.*

58. *Ceterach cordata.* Kze. *Fronds* pinnate; *pinnæ* sessile, cordate, oblong, crenate or lobed, paleaceous beneath; the *inferior pinnæ* small, more remote; *lobes* rounded, crenate-dentate. Kze. Linnæa., vol. 10, p. 497. *Gymnogramme cordata.* Schlecht. Adumbr. p. 16.

Amongst rocks in almost all parts of South Africa. *v. v* and *s.*

XVI. SCOLOPENDRIUM. SM. (1 species).

59. *Scolopendrium Krebsii.* Kze. *Fronds* coriaceous, lanceolate, acuminate pinnate. *Pinnæ* sessile, cordate, and auricled at base, lanceolate, acute, falcate, margined, and reflexed at the margin; *lower pinnæ* smaller, ovate; *terminal-ones* confluent. *Involucres* and *sori* oblique, placed near the mid-rib. *Stipes* short, angular, scaly at its base. *Rhizome* horizontally creeping, paleaceous. Kunze Linnæa, vol. 18, p. 119. Suppl. to Schkuhr, Filic., tab. 74.

In moist, shady places, and between rocks, near Graham's Town (Krebs. & Dr. Atherstone); in the forests of Natal (Gueinzius) *v. s.*

V. DAVALLIACEÆ. GAUDICH.

XVII. MICROLEPIA. PRESL. (1 species.)

60. *Microlepia polypodioides.* Presl. *Fronds* ovate or deltoid, acuminate, 3-pinnate, flaccid, more or less hairy or downy, especially on the veins and costæ beneath. Primary *pinnæ* and lower secondary ones acuminate, distant. *Pinnules* oblong or rhomboid-lanceolate, blunt, deeply pinnatifid. *Lobes* ovate or ob-ovate, entire or irregularly inciso-lobate, or again pinnatifid, sub-oblique, very obtuse. *Sori* large usually solitary on the entire lobes, several, on the pinnatifid-ones, and in the sinuses within the margin. *Involucres* small, half cup-shaped, smooth. *Rachis* downy on the underside. Hook. Spec. Filic., vol. 1, p. 181. *Davallia polypodioides.* Don.

In the forests of the Magalisberg. (Zeyher.) *v. s.*

XVIII. DAVALLIA. SM. (2 Species.)

61. *Davallia nitidula.* Kze. *Fronds* triangular sub-coriaceous, nearly glabrous, paler beneath, sub-3-partite, 3-pinnate; *pinnæ* alternate, stalked, patent, ovate, pointed, slightly curved; *lowermost* remote, nearly opposite; *secondary pinnules* from a cuneate base unequally ovate, obtuse, pinnatifid or incised; *segments* cuneate-oblong, retuse or sub-

marginate, and sub-incised at the apex, bearing *sori*; *involucres* obovate, truncate; *rachis* and *stipes* flexuose, glabrous; *caudex* creeping, chaffy. Kunze. Linnæa., vol. 10, p. 545. Suppl. to Schkhr. Filic., tab. 75, f, 2. Hook. Spec. Filic., vol. 1, p. 165, tab. 44, f. A.

In shady and rocky localities at Natal. (Drege, Gueinzius.) *v. s.*

62. *Davallia concinna.* Schrad. *Fronds* lanceolate-oblong, obtuse, curved, coriaceous, glabrous above, clothed beneath with scattered brown scales, more or less deeply pinnate-pinnatifid; *pinnæ* alternate, patent, ovate-cuneate at base; *segments* linear-spathulate, curved, margined; *margin* thickened, reflexed, retuse, 2 or 3 fid; *sori* and *involucres* semi-orbicular; *rachis* flattened, costate, margined; *stipes* short, ascending; *caudex* creeping, densely covered with brown, rigid scales. Hook. Spec. Fil., p. 193 *D. campyloptera.* Kunze. Linnæa., vol. 10, p. 544. Suppl. to Schkuhr. Filic., tab. 75, f. 1.

On the trunks of old trees in Plettenberg's Bay, George (Drege.) and in Blockhouse Kloof, Albany (Dr. Atherstone.) *v. s.*

XIX. LINDSÆA. DRYAND. (1 species.)

63. *Lindsæa ensifolia.* Sw. Firm and rigid. *Caudex* very short, creeping. *Stipes* (as well as the *rachis*) glabrous, as long as, or longer than the *pinnatid frond.* *Pinnæ* 5-13 linear-ensiform or lanceolate, patent, erect, sub-membranaceous; *sterile ones* sub-serrate; *veins* reticulated. *Sorus* continuous round the margin. Hook. Spec. Filic., vol. 1, p. 220. *Lindsæa membranacea.* Kze. Linnæa, vol. 18, p. 121. *Schizoloma ensifolium.* J. Smith.

At the base of high trees in the forests of Natal. (Gueinzius.) *v. s.*

VI. ADIANTACEÆ. PRESL.

XX. PTERIS. LIN. (5 Species.)

64. *Pteris pedata.* Willd. *Fronds* deeply lobed, pedate, coriaceous, smooth, dark green above. *Lobes* pinnatifid, acute; lateral ones parted in two, the lowermost reflexed. *Stipes* round, slightly pubescent at base, and, as well as the *rachises*, ebenous, glossy. *Rhizome* descendent. *Roots* fibrous. Willd. Sp. Plantar., vol. 5, p. 358.

Near Tamacha-post (Kaffraria), and along the sources of the Kat River (Eckl. & Zeyher); also at Natal. (Gueinzius.) *v. s.* Presl refers this to *Litobrachia*; but none of the South African specimens we have seen, show the venation of that genus.

65. *Pteris cretica.* Lin. *Fronds* either ternate or pinnate, glabrous. *Pinnæ* opposite acuminate; the lower ones more or less stalked, often 2-fid; middle ones confluent, sub-decurrent; *terminal pinna* lanceolate 3-fid; *sterile pinnæ* lanceolate, serrate at the sub-cartilaginous edge; *fertile ones* linear, entire. *Caudex* destitute of scales. Schlecht. Adumb., p. 40. Schkuhr. Filic., tab. 90. *Pteris Serraria.* Sw.

On the wood-clad mountains of Swellendam, George, and Uitenhage, at the Kat River, in the Winterberg, and at Natal. *v s.*

66. *Pteris arguta.* Sw. *Fronds* 2-pinnatifid, glabrous; *pinnæ* pinnatifid, lanceolate-ovate, falcate, acuminate, patent; *upper ones* sessile, somewhat decurrent; *lower ones* stalked; *segments* lanceolate-oblong, sub-falcate, acutely serrate at the apex; *basal ones* irregularly 3-4-lobed. *Sori* placed at the inferior half of the *segments* below the serratures; *margin* of *involucre* entire; *rachises* and *stipes* naked, very smooth. Schlecht. Adumb. p. 43. *Pteris flabellulata.* Thbg. (?)

In shady mountain localities; common in all parts of the colony, as well as at Natal. *v. v.* and *s.*

67. *Pteris catoptera.* Kze. *Fronds* pinnate, membranaceous, smooth, somewhat pale on the under surface; *pinnæ* sub-sessile; *segments* confluent (bearing short, stipule-like spines on the mid-rib of the upper side), oblong-linear, blunt, entire; *rachises, ribs,* and *stipes* glabrous, straw-coloured. Kze. Linnæa., vol. 18, p. 119. *Pteris biaurita.* Kze. Linnæa., vol. 10, p. 436.

In the forests of Natal (Drege, Gueinzius); at the Magalisberg. (Zeyher.) *v. s.*

68. *Pteris incisa.* Thbg. *Fronds* 2-pinnate, membranaceous, glabrous; *pinnæ* opposite, sessile, many-yoked; *pinnules* lanceolate, pale underneath; *lower ones* opposite, pinnatifid; *terminal ones* confluent; *segments* lanceolate-ovate, sinuate or entire; *stipes* round, stramineous. Schlecht. Adumb., p. 44. Thunb. Flora Capens., p. 733.

On the Devil's Mountain near the waterfall; in shady ravines at Hottentots' Holland; in the Du Toit's Kloof, etc. *v. v.* and *s.*

This Fern has not the venation of *Litobrachia,* to which genus it is referred by Presl.

21. LOMARIA. WILLD. (11 Species.)

69. *Lomaria capensis.* Willd. *Fronds* pinnate, membranaceous; *sterile pinnæ* approximate, sessile, obliquely cordate, lanceolate, notched, acuminate, not decurrent, smooth; *fertile ones* linear, crenate, mucronate; *ribs* and *stipes* furrowed, paleaceous. *Caudex* covered with large, broad, lanceolate, acute, ferruginous scales. *Blechnum capense.* Schlecht. Adumb., p. 34 tab. 18.

Common in moist, shady places and near rivulets; on the Table and Devil's Mountains, and in many parts of the colony. *v. v.* and *s.*

70. *Lomaria Boryana.* Willd. *Fronds* pinnate, coriaceous; *sterile pinnæ* alternate, remote, narrow, linear-lanceolate, entire, attenuated; *lower ones* stalked; *upper ones* adnate, cuneate at base, decurrent; all of them smooth and opaque on the upper surface, pale, and clothed with ferruginous scaly wool beneath; *fertile pinnæ* stalked, linear, erect, involute; *rachis* furrowed, very wooly in the upper half; *involucres* continuous, rent and articulated at length. *Stipes* long, surrounded at its base by awl-shaped, comose, twisted, ferruginous scales. *Blechnum Boryanum.* Schlecht. Adumb., p. 35, tab. 19. *Lomaria coriacea.* Schrad. (not Kze). *Lomaria cinnamomea.* Kaulf. Enum. Filic., p. 153.

In the forests of the Krakakamma, Uitenhage, and near the Kat River (Eckl. and Zeyher); in the DuToit's Kloof. (Drege) *v s*

* 71. *Lomaria Dalgairnsiæ.* Nob. (N. sp.) *Fronds* pinnate, membranaceous; *sterile pinnæ* alternate, remote, sessile, lanceolate-oblong, narrowed at both ends, pale beneath, glabrous; *terminal ones* confluent at their bases; *fertile pinnæ* linear, straight, erect, sharp-pointed; *involucres* involvent, lacerato-ciliate. *Stipes* and *rachises* clothed with wooly, ferruginous scales.

In the dense forests of the Knysna. (Miss Dalgairns, 1856.) *v. s*
This appears to be the Fern collected by Drege in the Du Toit's Kloof, and noticed by Kunze (Linnæa, vol. 10, p. 506) as a variety of *L. Boryana.* It does not, however, answer satisfactorily to the short diagnosis, and seems to be distinct.

72. *Lomaria heterophylla.* Desv. *Fronds* pinnate, coriaceous, smooth; *sterile pinnæ* rigid, alternate, broad at base, adnate, linear-lanceolate, acuminate, sub-falcate, entire, patent,

glaucous; margin dotted, revolute; *lowermost* small, remote, oblong, cuneate, rounded; *terminal one* often pinnatifid; *fertile pinnæ* narrow, linear, sharp-pointed; *involucres* more or less gnawed. *Stipes* and the *creeping caudex* paleaceous. *Blechnum heterophyllum.* Schlecht. Adumb. p. 37, tab. 20 and 22, fig. 1. *Lomaria gigantea* and *L. hamata.* Kaulf., l. c., p. 150.

In the bushes at the foot of Table Mountain, Kirstenbosch (Bergius); in forests of George (Drege.); Albany (Dr. Atherstone); and Natal (Gueinzius.) *v. s.*

* 73 *Lomaria cycadoides.* Nob. (N. sp.) *Fronds* pinnate, coriaceous; *pinnæ* alternate, remote, erect, sessile, glabrous, auricled at base; *sterile ones* lanceolate, oblong, blunt, very veiny, revolute, glossy, entire, dotted at the margin; *fertile pinnæ* linear-lanceolate, recurved at the apex; *rachises* and angular *stipes* smooth; *caudex* scaly, comose.

In the woods of Natal. (Plant No. 335.) *v. s.*

A sterile specimen of the same Fern, from Madagascar, is preserved in Dr. Pappe's collection.

74. *Lomaria attenuata.* Willd. *Sterile fronds* pinnatifid; *segments* lanceolate-oblong, attenuate, acuminate, entire, the *uppermost* elongated; *fertile pinnæ* pinnate; *pinnæ* linear; *involucres* torn, denticulated; *caudex* oblique, clothed with long, ferruginous scales. Willd. Spec. Plantar., vol. 5, p. 290. Kze. Linnæa., vol. 18, p. 116.

In shady places at Natal. (Gueinzius)

75. *Lomaria inflexa.* Kze. *Fronds* pinnate, lanceolate, coriaceous, smooth; *sterile pinnæ* adnate, alternate, approximate, patent, somewhat auricled, oblong, falcate, blunt, pale at the underside; *fertile pinnæ* stalked, erect, linear-oblong, obtuse, mucronate, curvato-inflexed; *rachis* purple, paleacous. *Stipes* short, dark-purple, ebenous, surrounded at base by large subulate, lanceolate, brown scales. Kunze. Linnæa., vol. 18, p. 117. Suppl. to Schkuhr's Filic., tab. 65.

In moist places at Natal. (Gueinzius.) *v. s.*

76. *Lomaria punctulata.* Kze. *Fronds* pinnate, glabrous; *sterile pinnæ* alternate, sessile, sub-imbricated, linear-lanceolate, auriculato-cordate, acuminate, sub-falcate, entire, reflexed and dotted at the margins; *lowermost pinnæ* smaller, oblong, obtuse; *fertile pinnæ* patent, remote, linear, mucronate.

Stipes short, scaly at its base. *Blechnum punctulatum.* Schlecht. Adumbr., p. 37, tab. 21 and 22, fig. 2. *Lomaria densa.* Kaulf., l. c., p. 151.

Common in moist, shady places throughout the colony and Natal. *v. v.* and *s.*

77. *Lomaria pumila.* Kaulf. *Fronds* pinnate, smooth; *sterile pinnæ* alternate, sessile, oblong, obtuse, submucronate, auriculato-cordate, scabrous at the margins; *fertile ones* linear-lanceolate, falcate, mucronate. *Stipes* short, and at its base, as well as the creeping *caudex* paleaceous. Kaulf. Enum. Filic., p. 151. *Blechnum australe.* Schlecht., p. 38. Schkuhr., Filic., tab. 110, b.

Common between rocks and moist mountainous spots in almost all parts of the colony; also at Natal. *v. v.* and *s.*

78. *Lomaria Spicant.* Desv. *Fronds* pinnate, destitute of scales; *sterile pinnæ* lanceolate, pectinato-pinnatifid; *segments* alternate, linear-lanceolate, rather blunt, entire, somewhat falcated, the *lowermost* rounded, short, remote, *uppermost* confluent; *fertile pinnæ* pinnate; *pinnæ* linear, narrow, acuminate; *involucres* curled. *Stipes* scaly at base. *Blechnum boreale.* Lin. Schlecht. Adumb., p. 38. Schkuhr. Filic., tab. 110.

Found somewhere in the colony. (Mr. Riche.)

* 79. *Lomaria decipiens.* Nob. N. sp. (?) *Sterile fronds* deeply pinnatifid, smooth; *segments* alternate, oblong, obtuse, quite entire; *lower ones* short, rounded; *terminal one* elongated, lanceolate, acuminate; all of them dotted at the margin. *Fertile fronds* unknown.

A puzzling species, and perhaps the juvenile plant of *Lomaria heterophylla,* Desv., but very close also to *L. Spicant.*

Near Graham's Town, parasitical on the caudex of *Alsophila capensis* (Dr. Atherstone), and between crevices of rocks near the mouth of the Klein River, Caledon. (Zeyher.) *v. s.*

XXII. CAMPTERIA. PRESL. (1 Species.)

80. *Campteria biaurita.* Hook. *Fronds* pinnate, membranaceous, smooth; *pinnæ,* sub-opposite, sessile, pinnatifid, lanceolate oblong, acute (bearing short stipule-like spines on the midrib of the upperside), *lowermost* 2-partite; segments confluent, oblong, blunt and rounded at the apex, all of them

quite entire. *Stipes* glossy, stramineous. *Campteria Rottleriana.* (Presl.?) *Pteris nemoralis.* Willd. (?)

In shady localities and clifts. Magalisberg. (Zeyher.); in the forests of Natal. (Plant.) *v. s.*

Very like *Pteris Catoptera.* Kze., but sufficiently different by the venation.

XXIII. ALLOSORUS. BERNH. (8 Species.)

81. *Allosorus hastatus.* Presl. *Fronds* 2 or sometimes 3-pinnate at the lower extremity; *pinnæ* and *pinnules* stalked, alternate, ovate-lanceolate, blunt, eared, or 3-lobed at base, notched, smooth or downy at the *ribs*, crenate and revolute at the margin. *Stipes* half round, channelled on the upper side, glabrous, glossy or paleaceous, and covered at its base with large linear-acute black-purplish scales. *Pteris auriculata.* Thbg. *Pteris hastata.* Schlecht. Adumb., page 42. *Cheilanthes hastata.* Kze. Linnæa, vol. 10, p. 532.

In the forests of Swellendam, George, Uitenhage, Albany, &c. *v. s.*

Of this very variable Fern, the following two are the most striking forms.

1st var. *macrophylla.* Kze. *Fronds* pinnate, or sometimes 2-pinnate at base; *pinnæ* and *pinnules* ovate, cordate, or sub-hastate, somewhat falcate, auricled, very smooth, often $3\frac{1}{2}$ inches long and $2\frac{1}{2}$ inches broad. Linnæa, vol. 10, p. 532.

In the aboriginal forests of the Krakakamma. (Eckl. & Zeyher), and at Natal (Gueinzius. Plant.) *v. s.*

2nd var. *stenophylla.* Kze. *Fronds* 2-pinnate; *pinnæ* and *pinnules* linear-lanceolate, acuminate, narrow, hastate, middle lobe elongated, nearly two inches long; *petioles* short, and as well as the *rachises*, downy. Kze. Linnæa, l. c. p. 533. *Pteris hastæfolia.* Schrad.

Near Philipstown, Kat River. (Eckl. & Zeyh.) *v. s.*

82. *Allosorus Calomelanos.* Presl. *Fronds* 2-pinnate, or 3-pinnate in the lower half; *pinnæ* and *pinnules* stalked, alternate, 3-angular-cordate, obtuse; terminal ones cordate, often 5-angular, all of them coriaceous, smooth. *Stipes* flexuose, slightly paleaceous at base, and like the *rachises* brittle, polished and ebenous. *Caudex* tufted, sub-globose, and thickly clothed with narrow ferruginous scales; *roots* fibrous,

shaggy. *Pteris hastata.* Thbg. *Pteris Calomelanos.* Sw. Kunze & Schlecht. Adumb., p. 43, tab. 30.

Between fissures of rocks; very common all over South Africa. *v. v.* and *s.*

83. *Allosorus auriculatus.* Presl. *Fronds* pinnate smooth; *pinnæ* either alternate or opposite, sub-sessile, ovate, or ovate lanceolate, auricled or sub-pinnatifid at base, entire or crenulated; *lower ones* rounded, *upper ones* oblong, all of them blunt; *margin* and *involucres* notched. *Stipes* smooth, or slightly paleaceous, purplish, glossy. *Caudex* clothed at base with pointed, linear ferruginous scales; *roots* fibrous, woolly. The whole fern little more than a span high. *Adiantum auriculatum.* Thbg. *Pteris auriculata.* Sw. Schlecht. Adumb. p. 41. tab. 23. *Cheilanthes auriculata.* Link. & Kze. Linnæa, vol. 10, p. 531.

Near water-courses, Rondebosch; in moist and shady places on Table and Devil's Mountains and elsewhere common. *v. v.* and *s.*

84. *Allosorus andromedæfolius.* Kaulf. *Fronds* 2-pinnate, 5-6 inches long; *pinnæ* remote, patent; *lower ones* 2-pinnate, *upper ones* pinnate; *inferior pinnules*, 3-foliate; *leaflets* stalked, oblong-ovate, blunt, revolute at the margin; *involucres* short. *Stipes* round, sparingly scaly. *Caudex* creeping, paleaceous; *roots* filiform, shaggy. Kaulf. Enum. Filic. p. 188.

In dry localities at Kendo. (Drege.)

*85. *Allosorus consobrinus.* Nob. *Fronds* 4-pinnate or 3-pinnate, pinnatifid, sub-triangular, straight, coriaceous, smooth; *pinnules* oblong-ovate, lower ones and those of the apex pinnatifid at base; terminal ones elongated, sterile ones, broad crenate, fertile ones narrow, quite entire. *Stipes* and *rachises* flexuose, furrowed, dark purple, glossy, the former covered at its base with comose paleaceous scales. *Pteris consobrina.* Kze. Linnæa, vol. 10, p. 526.

In the forests of the Knysna (Miss Dalgairns), Krakakamma, (Eckl. & Zeyher), near Fort England, Albany. (Dr. Atherstone), and in Kaffraria (Drege.) *v. s.*

*86. *Allosorus coriifolius.* Nob. *Fronds* 3-pinnate, coriaceous, glabrous, glossy above, pale below; middle and lower *primary pinnæ* and *pinnules* remote, terminal ones, short stalked, approximate, confluent at the apex, all of them

patent, oblong, acuminate, flexuose or curved; *secondary pinnules* sessile, divergent, ovate oblong, blunt, sub-auriculate, slightly pinnatifid: *segments* ovate, rounded, rather notched. *Rachises* and the short *stipes* angular, flexuose, covered with rufous down. *Pteris coriifolia.* Kze. Linnæa, vol 18, p. 120.

In the dense woods of Natal (Gueinzius.)

87. *Allosorus capensis.* Presl. *Fronds* 2-3-pinnate, coriaceous, hairy on the under surface; *upper pinnules* entire or auricled at base, *lower* ones, divided down to the mid-rib; *segments* adnate, confluent at top; *margins of the pinnæ* and their *segments*, inflexed, crenulated; *involucres* fringed. The very robust *stipes* as well as the *rachises* muricated. *Caudex* descendant, woolly. *Pteris capensis.* Thbg. Schlecht. Adumb., p. 45.

Common in woody, rough, stony places, &c., in all parts of South Africa, *v. v.* and *s.*

88. *Allosorus aquilinus.* Presl. *Fronds* 3-partite coriaceous; branches 2-*pinnate; pinnules* sub-sessile, linear-lanceolate, the superior ones undivided, the inferior ones pinnatifid; *segments* remote, lanceolate-oblong, obtuse. *Stipes* smooth. *Pteris aquilina.* Lin. Schkuhr. Filic. Tab. 95.

In a forest on the sources of the Kat River near Philiptown. (Eckl. & Zeyher.)

XXIV. CRYPTOGRAMMA. R. BR. (1 Species.)

*89. *Cryptogramma robusta.* Nob. Fertile *frond* 3 inches high, 2-pinnate-pinnatifid, oblong, smooth; *pinnules* and *segments* oblong-ovate, blunt, wedge-shaped at base. *Rachises* and the short channelled *stipes* curved or flexuose, purple, glabrous. *Caudex* stout, creeping, paleaceous. *Allosorus robustus.* Kze. Linnæa, vol. 10, p. 502.

Between rocks near Goedemanskraal, Namaqualand. (Drege.) *v. s.*

XXV. ADIANTUM. LIN. (2 Species.)

90. *Adiantum Capillus Veneris.* Lin. *Frond* 3-4-pinnate ovate; *pinnules* delicately membranaceous, smooth, obliquely broad cuneate, tapering into a slender stalk; the superior edge deeply and irregularly inciso-lobate; *lobes* obtuse or truncate, soriferous. *Sori* as broad as the lobes, oblong or

sub-reniform. *Stipes* and *rachis* ebenous, glabrous, polished. Hook. Spec. Filic. vol. 2, p. 36., tab. 74, B.

Between rocks on Table Mountain, &c ; also in the woods near the Kat River, and at Natal. *v v.* and *s.*

91. *Adiantum aethiopicum.* Lin. *Frond* 3-4-pinnate oblong-ovate, membranaceous, smooth ; *pinnules* sub-orbicular, obliquely cuneate at base, stalked ; superior margin more or less lobed ; notches of the lobes soriferous ; *sori* large, *involucres* oblong-lunate. *Stipes* slender, compressed ; *rachis* ebenous, glabrous, glossy. *Caudex* fibrous. Hook., l. c., p. 37, tab. 77 A.

Common in moist, shady places in all parts of the colony. *v. v.* and *s.*

XXVI. CHEILANTHES. SW. (16 Species.)

92. *Cheilanthes pteroides.* Sw. *Fronds* 3-pinnate, coriaceous, smooth ; *pinnæ* and *pinnules* remote, the latter stalked, cordate, elliptical, obtuse, crenate, opaque ; *involucres* contiguous, sub-round membranaceous, extending over the whole margin. *Stipes* and *rachises* woolly at their axils, stout, ebenous, glossy. *Caudex* creeping, scaly. Hook., Spec. Filic. vol. 2, p. 80, tab. 101, A. *Adiantum pteroides.* Lin.

In shady, damp places, and between rocks near Cape Town, the Paarl, Tulbagh, &c.; also at Natal. *v. v.* and *s.*

93. *Cheilanthes capensis.* Sw. *Fronds* 2-3-pinnate, deltoid, membranaceous, smooth; *pinnules* adnate, decurrent, ovate, or oval-oblong, crenate-dentate, rarely pinnatifid ; *involucres* fringed at the margin ; *sori* numerous, approximate. *Stipes* ebenous, shining, scaly. *Caudex* creeping, paleaceous. *Adiantum capense.* Thbg. & Kze. *Hypolepis capensis.* Hook. Spec. Filic., vol. 2, p. 71, tab. 77, c.

In shady localities between rocks in many parts of the colony. *v. v* and *s.*

94. *Cheilanthes multifida.* Sw. *Frond* 3, below 4-pinnate, deltoid-ovate, acute, coriaceous, glabrous; *primary pinnæ* rather opposite, broad-ovate, sub-deltoid, stalked ; *pinnules* or segments oblong, pinnatifid, *lobes* sub-round, each bearing 2-4 involucres. *Stipes* and *rachises* brittle, deep ebony, black, glossy. *Caudex* clothed with black subulate scales. Hook. l. c., p. 90, tab. 100, b.

In rocky and stony places in most parts of South Africa. *v. v.* and *s.*

* 95. *Cheilanthes refracta.* Nob. (N. sp.) *Frond* 2-3-pinnate, deltoid, rigid, perfectly smooth; *pinnæ* alternate, remote, deltoid-ovate, patent, upper ones sub-sessile, middle and lower ones stalked; *petioles* more or less reflexed; *pinnules* lanceolate-oblong, sessile, confluent at the apex, and as well as the intermediate ones crenate; *lowermost* distant, pinnatifid. *Stipes* short, half round, channelled on the upper side, flexuose, and like the *rachises*, glossy.

In Griqualand (Mr. Robert Moffatt, 1857). *v. s.*

96. *Cheilanthes triangula.* Kze. *Frond* 3-pinnate, triangular, coriaceous, smooth; *pinnæ* and *pinnules* remote, patent, stalked; *secondary pinnules* or lobes oblong, obtuse, sinuate, lobate, margined; the *margin* inflexed, crenate; *involucres* marginal; *sori* contiguous. *Stipes* and *rachises* flexuose, stiff, purple, slightly hairy. *Caudex* short. Kze. Linnæa, vol. 10, p. 535. Hook. l. c., p. 91.

Rocky places in the Sneeuwbergen, Witbergen and Compasberg. (Drege) in similar localities at Natal. (Dr. F. Krauss.) *v. s.*

97. *Cheilanthes Bergiana.* Schlecht. *Fronds* 3-pinnate membranaceous, sparingly hairy on both sides; *primary pinnæ* ovate, sub-acuminate; *secondary ones* rather obtuse; *pinnules* and primary lobes subovate, almost oblique, entire, or pinnatifid; *involucres* small, situated at the inner margin of the lobe. *Stipes* and primary *rachises* deep purple, black, and as well as the secondary rachises and ribs clothed with rusty hairs. Schlecht. Adumbr., p. 51. *Hypolepis Bergiana.* Hook. l. c. p. 67.

In thickets and at the borders of the forests in the Swellendam, George, and Uitenhage districts; also at Kat River and Natal. *v. s.*

98. *Cheilanthes elata.* Kze. *Frond* 4-pinnate-pinnatifid, 3-angular, membranaceous; *pinnæ* and *primary pinnules* stalked, remote, erect, and as well as the *secondary ones* sub-sessile, ovate-lanceolate, acuminated; *tertiary ones* oblong, blunt, sinuate, or inciso-pinnatifid, slightly clothed with whitish hairs; *sori* and *involucres* semi-orbiculate. *Stipes* and *rachises* flexuose, rough, covered with reddish chaffy hairs. Kze. Linnæa, vol. 10, p. 542. *Hypolepis elata.* Hook, l. c., p. 67.

In woods at Koratra (Drege.)

99. *Cheilanthes hirta.* Sw. *Frond* 2-3-pinnate, lanceolate or oblong-lanceolate, sub-coriaceous, hairy on both sides;

primary pinnæ lanceolate, lower ones opposite, distant; *pinnules* oblong or pinnatifid-ovate or crenulate, the *lobes* with the margins recurved, soriferous; *sori* numerous, confluent. *Stipes* short, purplish-brown, glossy, very hairy, and more or less glandular, shaggy at the base with long subulate scales. *Caudex* almost creeping; *roots* tufted. Schlecht Adumbr. p. 50. Kze. Linnæa., vol. 10, p. 539. Hook, l. c., p. 92, tab. 101, b.

Extremely changeable in form, according to the very different habitats of the species.

The following are the principal varieties enumerated by Kunze, l. c.

1st var. *contracta.* *Frond* 2-pinnate, rather rigid, often curved; *pinnules* approximate, oblong, erect; larger pinnules folded, and thickly clothed with rufous shag; *stipes* and *caudex* more or less smooth at base.

2nd var. *intermedia.* *Frond* 2-pinnate; *pinnæ* short, ovate, and as well as the minute and plane *pinnules* approximate; base of the *stipes* and *caudex* closely surrounded by long scales.

3rd var. *laxa.* *Frond* 2-3-pinnate; *pinnæ* and *pinnules* oblong-lanceolate, plane, remote, pinnatifid and incised; *stipes* and *rachises* fringed with rufous hairs. *Notholæna capensis.* A. Sprengel. Suppl. ad. Lin. Syst. Vegetab. p. 32.

4th var. *parviloba.* *Frond* 2-3-pinnate, calvescent, *pinnæ* lanceolate, elongated, distant; *pinnules* sub 3-lobed or auricled at base; *lobes* obtuse, convolute, middle one linear-oblong; *stipes* slightly paleaceous at base; *rachis* paleaceo-hirsute. *Cheilanthes parviloba.* Sw.

In rocky, shady, or open situations, and widely diffused over the whole of South Africa. *v. v.* and *s.*

* 100. *Cheilanthes glandulosa.* Nob. (N. sp.) *Frond* 2-3-pinnate, sub-coriaceous, linear-lanceolate; *primary pinnæ* remote, sub-opposite at base, alternate above, erect, pinnate, shortly stalked, oblong-ovate, obtuse, rough and opaque on the upper, paler and almost smooth on the under surface; *pinnules* subsessile, oblong, deeply lobed, blunt; *lobes* with the margins recurved, soriferous; *sori* copious, confluent. *Stipes* and *rachises* purple, fringed with delicate glandular shag.

Related to the preceding species, and very like *C. hirta* var. *laxa*. Kze. It seems however to be different.

In Griqualand (Mr. Robert Moffatt, 1857.) *v. s.*

101. *Cheilanthes induta*. Kze. *Frond* sub 4-pinnate, oblong, obtuse, coriaceous; *pinnæ* rather remote, stalked, ascending; *pinnules* shortly stalked, ovate, *secondary* oblong *tertiary*, and the *segments* roundish-ovate, all glabrous above, paleaceo-hirsute beneath; *involucres* marginal, crenulate, and as well as the *sori* continuous. *Stipes* flexuose, sparingly, and the *rachises* densely paleaceo-hirsute, purple. *Caudex* creeping. Kze. Linnæa, vol. 10, p. 538. Hook., l. c., p. 92, tab. 102, A.

In rocky, shady places in the Sneeuwbergen (Drege.)

102. *Cheilanthes deltoidea*. Kze. *Frond* 2-pinnate pinnatifid, 3-angular, sub-coriaceous, smooth; *pinnæ* obliquely ovate; *pinnules* and *segments* ovate, obtuse, with the cuneate base decurrent. *Stipes* smooth; *rachises* margined; *involucres* marginate, crenulated, continuous. *Sori* broad. Kze. Linnæa, vol. 10, p. 535. Hook, l. c., p. 106.

In the fissures of the rocks near Silverfontein, Little Namaqualand (Drege.) *v. s.*

103. *Cheilanthes profusa*. Kze. *Frond* pinnate, oblong-lanceolate, obtuse, sub-coriaceous; *pinnæ* often opposite, smooth, *uppermost* lanceolate, approximate, sub-connate, entire; *lower ones* ovate or deltoid, remote, acuminated, shortly stalked, deeply pinnatifid or sometimes pinnate at their bases; *pinnules* and *segments* lobed or pinnatifid; *costæ* hispid with narrow subulate scales; *involucres* continuous. *Stipes* and *rachises* hispid with paleaceous scales. *Roots* creeping, scaly. Kze. Linnæa, vol. 10, p. 535. Suppl. to Schkuhr's, Filic., tab. 17. Hook, l. c., p. 108.

Between rocks near Silverfontein (Drege) on Karroo-like hills at Buffeljagdsriver and Rietkuil. (Zeyher.) *v. s.*

104. *Cheilanthes cornuta*. Kze. *Frond* 2-pinnate, linear-lanceolate; *pinnæ* ovate approximate, the lowermost sub-opposite, stalked; *pinnules* sessile, sub-ternate, 2-3-fid, oblong, obtuse, coriaceous. *Sori* at length diffused. *Stipes* and *rachis* rigid, naked. Kze. Linnæa, vol. 10, p. 534. Hook, l. c., p. 109.

Near Hex River, Worcester (Eckl. & Zeyh.), and on dry stony hills near Enon, and the little Fish River (Drege.) *v. s.*

105. *Cheilanthes Atherstoni.* Hook. *Frond* 4-pinnate, deltoid, glabrous; *primary pinnæ* ovate-deltoid, and as well as the *secondary* and *tertiary pinnæ,* stalked; the lower ones distant, the upper ones more approximate; *pinnules* sessile, oblong, entire or pinnatifid in their lower half; *involucres* formed of the inflexed margins of the pinnules, pale and membranaceous at the edge, generally continuous; the edge more or less crenate or lobed. *Stipes* and principal *rachis* purple, ebenous, glossy. Hook, l. c., p. 107.

In the district of Somerset (Dr. Atherstone.)

106. *Cheilanthes firma.* T. Moore. *Frond* 3-4-pinnate, smooth, coriaceous, pentagonal acuminate, 1-1½ feet long; *inferior pinnules* of the lower pinnæ obliquely deltoid; *primary pinnæ* of lowest inferior pinnæ, pinnate, ovate-lanceolate, deeply pinnatifid, the *segments* oblong, bluntish, with notched margins; the lowest *secondary pinnules* stalked, the *intermediate ones* either stalked or sessile, lanceolate-oblong, scarcely pinnatifid; the uppermost ones connate, pointed. *Stipes* and *rachises* smooth, brown, shining, channelled. *Sori* continuous; *involucres* lobed, crenate. T. Moore, in Hook., Journ. of Botan. and K. G. Miscellany, vol. 5, p. 225.

According to Mr. Moore, nearly related to *C. Atherstoni.* Hook.

On the sides of mountain streams. Natal (Plant.)

107. *Cheilanthes linearis.* T. Moore. *Frond* 4-pinnate, deltoid, coriaceous smooth, 6 inches high; *ultimate pinnules* all distinct, small, linear, obtuse, the *terminal one* of the same form; *sori* numerous; *involucres* continuous, narrow, slightly waved. *Stipes* and *rachises* round behind, plane and margined in front, purple, glossy. T. Moore, l. c., p. 226.

In rocky places near Impafane, Natal (Plant.)

XXVII. HYPOLEPIS BERNH. (2 Species.)

108. *Hypolepis anthriscifolia.* Presl. *Fronds* 3-pinnate, hairy on the mid-rib and veins beneath, membranaceous; *primary pinnæ* oblong-ovate, acuminate; *secondary ones* broad, oblong; *pinnules* linear-oblong, sub-falcate, deeply pinnatifid; *segments* small, entire or toothed, bearing solitary *sori* in the inner margin; *involucres* squamiform. *Stipes* and *rachises* glabrous. *Cheilanthes sparsisora* Schr. *C. commutata.* Kze. Linnæa, vol. 10, p. 542. Hook. Spec. Filic., vol. 2, p. 66, tab. 95. A.

In the forests near Plettenberg's Bay, in the Zuurbergen (Albany), at Natal (Plant, No. 369), &c. *v. s.*

109. *Hypolepis aspera.* Prl. *Fronds* 3-pinnate, subcoriaceous; *primary pinnæ* alternate, lanceolate, curved, erect, stalked; *pinnules* sub-sessile or shortly petioled, lance-shaped, pinnatifido incised; *segments* sub-dentate; *rachis* rough; *sori* solitary at the superior base of the segments; *involucres* subreniform. *Stipes* almost smooth, glossy. *Caudex* creeping, shaggy; *roots* filiform. *Cheilanthes aspera.* Kaulf. Linnæa, vol. 6, p. 186. Hook., l. c., p. 67.

In shady localities near the cataract on the Devil's Mountain, near Genadendal (Caledon), in the forests of George, Albany, &c. *v. v.* and *s.*

XXVIII. LONCHITIS. LIN.

110. *Lonchitis natalensis.* Hook. *Fronds* 2-pinnate, moderately hairy on both sides; *pinnæ* more or less stalked, the upper half, *pinnatifid*; *pinnules* sessile, broad lanceolate, acuminate, nearly entire or somewhat lobed in the lower half; *lobes* rounded, undivided, short, the sinuses and entire margins soriferous; *sori* small. *Stipes* and *rachis* downy. Hook. Spec. Filic., vol. 2, p. 57, tab. 89. B.

In the primæval forests of Natal. (Gueinzius.) *v. s.*

111. *Lonchitis glabra.* Bory. *Fronds* 2-pinnate membranaceous, with scattered fulvous hairs on the stipes, rachis, mid-rib, and veins on both sides; *pinnæ* sessile oblong-ovate, acuminate, pinnatifid at the apex; *pinnules* lanceolate, obtuse, lobed or pinnatifid, all of them decurrent, so as to constitute a broadly-winged rachis to the pinnæ; the *inferior pinnule* above (next to the main rachis), dwarfish; *lobes* round, entire; sinuses soriferous; *sori* small, lunate. *Stipes* paleaceous at the base. Schlecht. Adumbr. p. 47. Hook, l. c. p. 57. Kunze Suppl. to Schkuhr, tab. 66.

In the forests of the Tzitsikamma (Mundt, Dr. Alexander, Dr. Rubidge) at Natal. (Drege.) *v. s.*

VII. VITTARIACEÆ. Presl.

XXIX. VITTARIA. SM. (1 Species.)

112. *Vittaria lineata.* Sw. *Fronds* linear, narrow, very long, membranaceous, pendulous. *Sori* solitary, intermarginal. *Caudex* bulbose, shaggy; *roots* fibrous. Schlecht. Adumbr., p. 33. Schkuhr. Filic., tab. 101 b.

In woods near Swellendam (Mundt), in the forests of George (Drege.), in Blockhouse Kloof, near Graham's Town (Dr. Atherstone), and at Natal (Gueinzius.) *v. s.*

VIII. POLYPODIACEÆ. Presl.

XXX. POLYPODIUM. LIN. (3 Species.)

113. *Polypodium vulgare.* Lin. *Frond* deeply pinnatifid, its *segments* linear lanceolate, blunt, crenulate at the margins, approximate; upper ones gradually smaller. *Sori* circular, placed in a single line on each side of the midrib at the upper portion of the frond. *Rhizome* creeping, chaffy. Schkuhr's Filic., tab. 11.

In the fissures of rocks on Table Mountain; also at George, Albany, Kat River, and in Kafirland. *v. s.*

114. *Polypodium Ecklonis.* Kze. *Frond* lanceolate-ovate, deeply pinnatifid; *segments* broad at base, remote, alternate, patent, oblong, rather blunt, perfectly entire, glossy on the upper side, and covered below (as well as the *costa* and the *stipes*) with loose scales. *Sori* cushioned, submarginal. Kze. Linnæa, vol. 10, p. 498.

Parasitical on old trees in the forests of Uitenhage, Beaufort, and Kaffraria (Eckl. & Zeyh.); also at Natal (Drege.) *v. s.*

115. *Polypodium Bergianum.* Schlecht. *Fronds* hairy on both sides: *pinnæ* alternate or opposite, pinnatifid, acute; *segments* alternate, oblong, obtuse, ciliated, slightly gnawed at the borders. *Stipes* and *rachises* clothed with shaggy down; *sori* small in one row between the midrib and the margin. Schlecht. Adumb., p. 20, tab. 9.

In shady places at the foot of Table Mountain, Witteboom, and Kirstenbosch (Bergius, Mundt, Drege), near the cataract on the Devil's Peak (Ecklon), at Natal (Dr. Krauss.)

XXXI. GONIOPTERIS. PRESL. (1 Species.)

* 116. *Goniopteris silvatica.* Nob. *Frond* pinnate 3-4 feet high, smooth, dark green at the upper, pale at the underside, sub-coriaceous; *pinnæ* obliquely truncate at base, sessile, oblong-lanceolate, long and narrowly tapering towards the apex, acuminate, remote, inciso-pinnatifid; *lower ones* nearly opposite, *upper ones* alternating; *segments* oblong, falcate, obtuse; *veins, rachises,* and the 3-cornered furrowed *stipes* slightly downy; *sori* minute. *Gymnogramma unita.* Kze. Linnæa, vol. 18, p. 115.

In the primæval forests of Natal. (Gueinzius.) *v. s.*

XXXII. MARGINARIA. BORY. (1 Species.)

117. *Marginaria ensiformis.* Presl. *Frond* coriaceous,

smooth, ovate-oblong, wedge-shaped below, 3-fid, pinnatifid ; pinnate at base or sometimes simple ; *segments* of the *sterile frond* opposite, attenuated at top, rather acute ; those of the *fertile ones* linear ensiform, blunt, repando-crenate, decurrent ; *sori* circular in a single row. *Stipes* short ; *rhizome* creeping, paleaceous. *Polypodium ensiforme.* Thbg. Kze. Suppl. to Schkuhr's Filic., p. 117, tab. 54.

At the trunks of decayed trees in the forests of Swellendam and George ; also at Natal. *v. s.*

XXXIII. PLEOPELTIS. HUMB. & BONPL. (2 Species.)

118. *Pleopeltis lepidota.* Presl. *Frond* lanceolate, much narrowed towards the base, rather blunt at the apex, quite entire or sinuate, coriaceous, almost naked on the upper surface, and covered with minute scales below. *Sori* large, cushioned, solitary ; *rhizome* creeping, paleaceous. *Polypodium adspersum.*. Schr. *P. lepidotum.* Schlecht. Adumb. p, 17, tab. 8.

In woods and shady spots near Cape Town, Kirstenbosch, Paradise, &c., and in the districts of Swellendam, George, Albany, &c.; also at Natal. *v. v.* and *s.*

119. *Pleopeltis lycopodioides.* Presl. *Frond* subsessile, lanceolate, or linear-lanceolate, narrowed at both ends, obtuse, glabrous. *Sori* large, placed in one row on each side of the mid-rib. *Caudex* creeping, scaly. *Polypodium lycopodioides.* Willd. Spec. Plant, vol. 5, p. 150. Schkuhr. Filic., tab. 8. c.

Creeping and climbing at the feet of old trees, in the forests of Natal (Gueinzius.) *v. s.*

XXXIV. PHYMATODES. PRESL. (3 Species.)

120. *Phymatodes vulgaris.* Presl. *Frond* simple, elongated 3-angular, coriaceous, smooth, deeply 3-lobed at the apex, decurrent at base ; *segments* lanceolate, patent, acuminate, quite entire ; *sori* almost circular, scattered, immersed. *Stipes* broadly winged in the upper portion of the frond. *Rhizome* creeping, scaly. *Polypodium phymatodes.* Lin. Willd. Spec. Plant, vol. 5, p. 167. Schkuhr. Filic., tab. 8. d.

On the trunks of old trees in the aboriginal forests of Natal. (Gueinzius Plant.) *v. s.*

121. *Phymatodes irioides.* Presl. *Frond* cartilaginous, simple, elongated, quite entire, oblong-lanceolate, sword-shaped, attenuated at the base, reticulated, perfectly smooth.

Sori minute, numerous, scattered. *Rhizome* creeping, scaly. *Polypodium irioides.* Poir. Spreng. Syst. Vegetab., vol. 4, p. 48.

In the forests of Natal (Gueinzius) *v. s.*

122. *Phymatodes elongata.* Presl. *Frond* linear-lanceolate, narrowed at both ends, entire, subcoriaceous, smooth. *Sori* impressed in one single row on each side of the costa. *Caudex* creeping. *Polypodium elongatum.* Schr. Schlecht. Adumb., p. 16, tab. 7.

On the stems of old trees in the forests of George (Mundt. Ecklon), near the bath of Olifant's River (Rev. Hesse.); in Blockhouse Kloof, Graham's Town (Dr. Atherstone); near Boontjes River, &c. (Drege.) *v. s.*

XXXV. NIPHOBOLUS. KAULF. (1 Species.)

123. *Niphobolus africanus.* Kze. *Frond* lanceolate, shortly stalked at base, costate, margined, stellate tomentose and hoary beneath, rather smooth above; top of the *sterile frond* shortened, blunt; *fertile one* narrowed into a long, obtuse, soriferous apex. *Sori* minute, confluent. *Caudex* creeping, densely scaly. Kze. Linnæa, vol. 10, p. 501. Suppl. to Schkuhr's Filic., tab. 33.

Between rocks and on the trunks of trees in the woods of Natal. (Drege.) *v. s.*

IX. GRAMMITACEÆ. PRESL.

XXXVI. GRAMMITIS. PRESL. (1 Species.)

124. *Grammitis totta.* Presl. *Fronds* pinnate, lanceolate, membranaceous (and as well as the *stipes* and *rachises*) hairy on both sides; *pinnæ* alternate, sessile, pinnatifid, lanceolate, acuminated; the upper ones adnate, confluent, the lower ones remote; *segments* opposite, ovate, blunt, gnawed, ciliated; *sori* linear, small. *Stipes* short; *rhizome* descending; *roots* filiform. *Gymnogramma totta.* Schlecht. Adumb., p. 15, tab. 6.

Near the cataract on the Devil's Mountain (Mundt. Pappe); in a wood near Koratra (Drege); in the forests of the Knysna (Dr. Krauss.)

XXXVII. GYMNOGRAMMA. DESV. (3 Species.)

125. *Gymnogramma conspersa.* Kze. *Frond* delicate, membranaceous, pale green on the upper surface, and covered beneath with a white mealy substance, ovate triangular,

acuminated, 3-partito 2-pinnatifid; *pinnæ* trapezoid, inciso-pinnatifid, wedge-shaped and decurrent at base; *segments* cuneate, 2-fid, blunt; *sori* few seeded. *Stipes* long; *rachises* and *ribs* purplish. *Caudex* tufted. Kunze. Linnæa., vol. 18, p. 116.

In the crevices of rocks near the cataract between Omfondi and Togela Rivers, Natal. (Gueinzius.) *v. s.*

* 126. *Gymnogramma namaquensis.* Nob. (N. sp.) Annual. *Frond* (about 4 inches long), membranaceous, smooth, pinnato-pinnatifid; *pinnæ* alternate, distant, lanceolate oblong, rough on the upper surface, glandular and scaly beneath; *segments* inciso-crenate. *Stipes* flexuose, erect, and as well as the *rachis* densely-paleaceous. *Caudex* short, cæspitose, obliquely descending.

Between rocks near Modderfontein, Namaqualand (Rev. H. Whitehead, 1856.) *v. s.*

127. *Gymnogramma leptophylla.* Desv. Annual. *Frond* slender, very delicate, 2-pinnate, smooth, 3 inches high; *pinnules* roundish-cuneate, sub-trilobed; *lobes* bluntly 2-dentate; *sori* confluent; *roots* filiform. *Grammitis leptophylla.* Sw. Willd. Spec. Plant., vol. 5, p. 143. Schkuhr. Filic., tab. 26.

In moist vegetable soil, near the cataract on the east side of the Devil's Mountain—rare. (Mundt, Dr. Alexander, 1848.) *v. s.*

X. TÆNITIDEÆ. Presl.

XXXVIII. NOTHOLÆNA. R. BR. (3 Species.)

128. *Notholæna Eckloniana.* Kze. *Frond* 2-pinnato-pinnatifid, lanceolate, hoary above, clothed beneath with rufous shaggy scales; *pinnæ* opposite, 3-angular-ovate; *pinnules* oblong, the lowermost bent downwards, and as well as the middle ones deeply incised; *segments* ovate-oblong, blunt; the uppermost entire, confluent. *Caudex* short, ascending, paleaceous. Kze. Linnæa, vol. 10, p. 501.

In the mountains of Uitenhage, Beaufort, Kat River, Kaffraria and Natal. (Eckl. & Zeyher, Krebs, Drege, Dr Rubidge); and on hills along the Orange River, and Gamohana range, Griqualand. (Mr. Robt. Moffatt.) *v. s.*

* 129. *Notholæna Rawsoni.* Pappe. (N. sp.) *Frond* pinnate, linear oblong, stout, coriaceous, about 6-7 inches long, dark green, somewhat rough on the upper surface, covered beneath with thick ferruginous or white shaggy filt; *pinnæ* alternate,

remote, short, pinnatifid ; upper ones sessile, lowermost opposite, smaller, shortly petioled ; *segments* ovate, rounded. *Stipites* aggregate, flexuose, black-purple, shining, clothed with fugacious shag. *Caudex* creeping, densely surrounded by linear-acute, margined scales.

On hills between Spectakel and Komaggas, Namaqualand. (Rev. H. Whitehead, July, 1856.) *v. s.*

130. *Notholæna inæqualis.* Kze. *Frond* ovate-oblong, bluntly acuminate, coriaceous, stiff, hairy on the upper surface, clothed with thick rufous shag at the underside, 2-*pinnate* at base, simple above, confluent at the apex; *pinnæ* opposite or alternate, remote, patent, unequally sided; lower ones stalked, almost 3-angular-oblong, subfalcate obtuse ; *pinnules* sinuate, the lowermost bent downwards, inciso-pinnatifid, elongated ; *sori* concealed under the shag. *Stipes* and the stout *rachises* flexuose, ebenous, hairy. *Rhizome* horizontal, densely scaly. Kze. Suppl. to Schkuhr. Filic., p. 146, tab. 64, fig. 1.

In the fissures of rocks in the Magalisberg. (Zeyher.) *v. s.*

XXXIX. PTEROPSIS. DESV. (1 Species.)

131. *Pteropsis angustifolia.* Desv. *Fronds* fascicled, linear-lanceolate, erect, simple, perfectly entire, coriaceous, smooth, tapering towards the base into a short *stipes ; sori* marginal. *Rhizome* round, covered with linear ferruginous scales. *Pteris angustifolia.* Sw.

Between rocks on the mountains near Genadendal. (Rev. C. R. Kölbing.) *v. s.*

XI. ACROSTICHACEÆ. PRESL.

XL. STENOCHLÆNA. J. SMITH. (1 Species.)

* 132. *Stenochlæna Meyeriana.* Nob. *Fronds* oblong, lanceolate ; *sterile frond* pinnate, *pinnæ* alternate, lanceolate, acuminate, smooth, glossy, very veiny, twice and irregularly serrate ; *ribs* furrowed on the upper side ; *fertile frond* 2-pinnate ; *pinnæ* alternate, *pinnules* linear, sub-recurved at the apex, rather obtuse ; *partial rachises* slender, flexuose. *Caudex* bent, angular, rough, climbing. *Lomaria Meyeriana.* Kze. Linnæa, vol. 10, p. 509.

Climbing up large trees in damp ravines near the coast of Natal. (Drege, Plant, Gueinzius.) *v. s.*

XLI. OLFERSIA. RADDI. (2 Species.)

133. *Olfersia angustata.* Presl. *Frond* oblong, blunt, smooth, tapering down into a long *stipes*; *fertile one* longer and narrower. *Caudex* creeping, clothed with broad fulvous scales. *Acrostichum angustatum.* Schr. Schlecht. Adumb., p. 14, tab. 5.

In clefts of rocks on the east side of Table Mountain, at Hottentot's Holland, Caledon, Swellendam, George, &c. *v. v.* and *s.*

134. *Olfersia conformis.* Presl. *Frond* oblong, acute, glabrous on the upper, paler and slightly scaly on the under surface, tapering down into a stalk, entire; *fertile one* somewhat longer. *Caudex* creeping, paleaceous. *Acrostichum conforme.* Sw.

On the face of rocks on Table Mountain, at Caledon, Swellendam, in Albany, &c. *v. s.*

XLII. ACROSTICHUM. LIN. (1 Species.)

135. *Acrostichum inæquale.* Willd. *Frond* pinnate, coriaceous, smooth; *pinnæ* alternate, lanceolate-oblong, quite entire, unequally wedge-shaped at base; all of them blunt, terminated by a hard short point. Willd. Enum. Plant, vol. 5, p. 117.

In marshy soil near the Natal coast. (Dr. F Krauss, Plant.) *v. s.*

XII. HYMENOPHYLLEÆ. ENDL.

XLIII. HYMENOPHYLLUM. SM. (2 Species.)

136. *Hymenophyllum tunbridgense.* Sw. *Fronds* pinnate, small, tender, quite smooth; *pinnæ* distichous, pinnatifid; *segments* linear, truncate, entire or 2-fid, and as well as the supra-axillary, solitary, compressed *involucres*, spinuloso-serrate; the *valves* semi-orbicular; *rachis* winged above. *Stipes* filiform procumbent. Hook, Spec. Filic., vol. 1, p. 95. Schkuhr's Filic., tab. 135. d.

In shady, moist places between rocks on Table Mountain, at Hottentot's Holland, &c. *v. v.* and *s.*

137. *Hymenophyllum rarum.* R. Br. *Fronds* pinnate, flaccid, decompound, linear oblong; *pinnæ* pinnatifidly incised; *segments* entire, obtuse, erect; *involucres* rhomboid, wedge-shaped at their lower half, the upper forming two semicircular entire compressed valves. *Stipes* slender. Hook. Spec.

Filic., vol. 1, p. 101. R. Br. Prodrom, Flor. Nov. Holland. p. 159. *H. fumarioides.* Bory. Schlecht, p. 56.

In the same localities with the former, also in Blockhousekloof, Graham's Town. (Dr. Atherstone.) *v s.*

XLIV. TRICHOMANES. LIN. (3 Species.)

138. *Trichomanes Filicula.* Bory. *Fronds* pinnate, smooth, opaque, ovate-lanceolate; *pinnæ* 2-3-fid; *segments* linear, blunt, retuse, entire; *involucres* solitary, supra-axillary, cylindrical 2-lipped, tapering at the base, immersed or winged at the sides. *Stipes* short, compressed, margined at its upper portion; *caudex* creeping, clothed with dense black down. Hook. Spec. Filic., vol. 1, p. 124. *Trichomanes melanotrichum.* Schlecht. Adumb., p. 56. *Hymenophyllum alatum.* Schkuhr. Icon. Filic., tab., 135. b.

On the trunks of old forest trees, near Genadendal, Plettenberg's Bay, Graham's Town, &c.; also in Kaffraria *v. s.*

139. *Trichomanes pyxidiferum.* Lin. *Frond* 2-3-pinnatifid oblong-ovate, pellucid, membranaceous, not margined, somewhat glossy; *segments* linear, smooth, entire or emarginate at the apex; *involucres* solitary, axillary, immersed, sub-cylindrical; receptacles very long, filiform, much exserted. *Stipes* winged above or rarely naked. Hook. Sp. Filic., vol. 1, p. 124.

On trees at Natal. (Plant.)

140. *Trichomanes rigidum.* Sw. *Frond* 2-pinnate, ovate, acuminate, rigid; *pinnules* linear-lanceolate, cuneate, sub-2-pinnatifid; the ultimate *segments* sub-acute, simple or 2-fid; *rachis* wingless, or very narrowly margined; *involucres* supra-axillary, sub-urceolato cylindrical, free; the mouth entire. Hook. Spec. Filic., vol. 1, p. 133.

Between fissures of rocks in shady places at Natal. (Drege.)

XIII. SCHIZAEACEÆ. MART.

XLV. SCHIZÆA. SM. (2 Species.)

141. *Schizæa pectinata.* Sm. *Fronds* cæspitose, simple, filiform, channelled, stiff, leafless, smooth, bearing on their summit pectinate spikes, composed of fifteen one-sided pairs of appendages bearing the fructification. Schkuhr. Filic., tab. 136.

In sandy soil on the Cape flats, on the summit of Table Mountain, and in many more places within the colony. *v. v.* and *s.*

142. *Schizæa tenella.* Kaulf. *Fronds* simple, linear, slender, filiform, compressed, terminated by sub-erect spikes, containing eight pairs of fruit-bearing appendages. Kaulf. Enum. Filic., p. 50, tab. 1, f. 7.

Between rocks on the mountains of Hottentot's Holland. (Chamisso, Zeyher); in similar places near Genadendal. (Rev. C. R. Kölbing.) *v. s.*

XLVI. ANEMIA. SW. (1 Species.)

143. *Anemia Dregeana.* Kze. *Sterile fronds* pinnate, linear-oblong, membranaceous, *pinnæ* nearly sessile, obliquely-ovate, blunt, somewhat auricled, wedge-shaped at base, slightly notched at the margin, smooth and glossy above, strigose along the veins below; *fertile frond* 3-partite, 2 of its partitions fruit-bearing, 3-pinnate; the third sterile one pinnate. *Stipes* and *rachises* hairy; *caudex* creeping, shaggy. Kze. Linnæa, vol. 10, p. 493. Suppl. to Schkuhr., tab. 20. Hook. Icon. Plant, vol. 3, tab. 236.

In moist shady places amongst rocks in the forests of Natal. (Drege, Gueinzius.) *v. s.*

XLVII. MOHRIA. SW. (1 Species.)

144. *Mohria thurifraga.* Sw. *Fronds* 2-pinnate, coriaceous, covered beneath with chaffy scales; *pinnæ* alternate, stalked; *pinnules* ovate; the upper fruit-bearing ones crenate; the barren ones deeply incised. *Caudex* creeping, paleaceous. *Adiantum caffrorum.* Thbg.

Common on the mountains of the Cape Colony, Kaffraria, and Natal. *v. v.* and *s.*

This fern, when bruised, is fragrant, and smells of *Benzoin* or *Olibanum.* In some parts of the colony, the dry fronds are pulverised, and with fat made into an ointment, which is cooling and serviceable in burns and scalds. The vernacular name of this plant is *Brand-boschjes.*

XIV. OSMUNDACEÆ. R. BR.

XLVIII. OSMUNDA. SW. (1 Species.)

145. *Osmunda regalis.* Lin. *Fronds* 2-pinnate, smooth; *pinnæ* stalked, alternate, oblong-ovate, many-yoked; *pinnules* shortly petioled, unequally sided, and more or less auricled at base, oblong, slightly notched, blunt; *fertile panicle* 2-pinnate,

placed at the extremity of the frond. Schkuhr. Icon. Filic., tab. 145.

On a cataract between the Omzamcaba and Omzamvoobo Rivers Natal. (Drege.)

Var. *Spectabilis.* Kze. *Sterile pinnules* elongated, thicker, obliquely truncate and inciso-crenate at base. *Osmunda spectabilis.* Willd. Spec. Plantar, vol. 5, p. 98.

In shady places near rivulets, in the mountains of Hottentot's Holland, Swellendam, Tulbagh, Uitenhage, &c. (Eckl. & Zeyh.), at Natal. (Drege.) *v. s*

XLIX. TODEA. WILLD. (1 Species.)

146. *Todea africana.* Willd. *Fronds* 2-pinnate, oblong, erect, smooth, coriaceous 5-6-feet high; *pinnæ* opposite, shortly petioled, oblong-lanceolate, many-yoked, patent, the upper and lower ones being smaller by degrees; *pinnules* alternate, linear-lanceolate, cohering at base, blunt, crenate-serrate. *Stipes* quadrangular, smooth. *Osmunda barbara.* Thb. Schkuhr. Icon. Filic., tab. 147.

In shady localities near rivulets, common all over the Cape colony and Natal. *v. v.* and *s.*

XV. MARATTIACEÆ. Sw.

L. MARATTIA. SW. (1 Species.)

147. *Marattia salicifolia.* Schrad. *Fronds* 2-pinnate, subcoriaceous; *pinnæ* oblong-lanceolate, alternate or opposite, stalked, patent, erect, acuminated; *pinnules* subsessile, lanceolate, cuneate at base, sharp pointed, acutely inflexo serrate, the terminal larger one often pinnatifid or lobed; *partial rachises* margined or winged in the upper portion, smooth. *Synangia* elliptical, remote from the edge and from one another. *Caudex* short, creeping, paleaceous. Schlecht. Adumb. p. 11. Kunze Linnæa, vol. 10, p. 488. Suppl. to Schkuhr. Icon., p. 79, tab. 38.

In the forests of the Tzitsikamma and Natal. (Drege, Gueinzius, &c.) *v. s.*

XVI. OPHIOGLOSSEÆ. R. Br.

LI. OPHIOGLOSSUM. LIN. (4 Species.)

148. *Ophioglossum nudicaule.* Lin. fil. *Frond* sessile, elliptical or lanceolate-ovate, sheathing, mucronate, reticulated,

placed near the middle of the *scape*. *Scape* short, slender 3-4-inches high, terminated by the linear, acuminated spike which bears the fructification; *rhizome* fibrous. *O lusitanicum*. Thbg. Flor. Cap *O capense*. Schlecht Adumb. p. 9. tab. 1, fig. 2. Kunze Suppl. to Schkuhr. Filic., p. 59, tab. 29, fig. 3.

On grassy hills and at ditches near the Olifant's River (Mundt), at Gamka River and between the Bushmen's and Koega Rivers, (Eckl. & Zeyher.) *v. s.*

149. *Ophioglossum Bergianum*. Schlecht. *Scape* slender, 1½-2 inches high, naked; *radical leaves* linear, narrow; *spike* cylindrical, pointed; *rhizome* fascicled. Schlecht. Adumb., p. 10. Hook. Icon. Plant, vol. 3, tab. 263.

Amongst grasses at the base of Lion's Mountain. (Bergius Harvey, W. C. Faure); in turf near Kuil's River (June, 1845, Pappe.) *v. v.* and *s.*

150. *Ophioglossum reticulatum*. Lin. *Spike* arising from the stem; *frond* cordate-ovate, acute, loosely reticulated. Willd. Enum. Plant, p. 60.

Between grasses near the Umlaas River, Natal. (Dr. Krauss.)

151. *Ophioglossum costatum*. R. Br. *Spike* arising from the stem; *frond* lanceolate-oblong, one-nerved, reticulated. R. Br. Prodr. Flor. Nov. Holland., p. 163.

Found somewhere in the colony by Capt. Carmichael; special locality unknown. (Tulbagh ?)

XVII. LYCOPODIACEÆ. D. C.

LIII. LYCOPODIUM. LIN. (9 Species.)

152. *Lycopodium carolinianum*. Lin. *Leaves* lanceolate, sub-falcate, acuminate, one-sided; *stalks* erect, elongated, bearing one solitary cylindrical *spike*; *bracts* auricled, subcordate, patent, pointed. *Stem* creeping, branchy. *L. repens*. Schlecht, p. 5, tab. 14.

In wet sandy soil on the Lion's Mountain (Rev. Hesse); in Attaquaskloof, Swellendam (Mundt.); at Hottentot's Holland, and Montagu's Pass (Eckl. & Zeyher.) *v. s.*

153. *Lycopodium cernuum*. Lin. *Leaves* awl-shaped, scattered, curved; *terminal spikes* sessile, nodding; *bracts* ovate,

acuminate-subulate, appressed, membranaceous; serrato-ciliate. *Stem* very branchy. Schlecht. Adumb., p. 5.

Near the hot springs of the Goudine (Mundt), near Klip River, Swellendam, and at Natal. (Dr. Krauss.) *v. s.*

154. *Lycopodium pygmæum.* Kaulf. Annual. *Leaves* scattered, sessile, ovate or ovate-lanceolate, squarrose; *spikes* terminal, oblong, sessile, solitary; *bracts* ovate, acuminated. *Stem* erect, simple, or rarely branched. Kaulf. Enum., Filic., p. 9. Schlecht. Adumb., p. 6., tab. 3.

Between grasses on the Lion's Rump, in the mountains of Hottentot's Holland, and in Grootvadersbosch, Swellendam. *v. v.* and *s.*

155. *Lycopodium gnidioides.* Sw. *Leaves* sessile, subcoriaceous, imbricated, oblong-obtuse, quite entire; *spikes* long, hexagonal, confluent; *bracts* ovate, leaflike, slightly acuminated. *Stem* dichotomous, leafy. Schlecht. Adumb., p. 7, tab. 2.

Upon the trunks of forest trees in the division of George (Bergius., Mundt.); in Blockhouse Kloof, near Graham's Town (Dr. Atherstone); at Natal (Gueinzius.) *v. s.*

Var. *pinifolia.* *Leaves* densely imbricated, coriaceous, decurrent, glossy; *spikes* two inches long, sessile, standing in pairs; *branches* dichotomous, fastigiate, curved at the apex; *bracts* keeled. *Stem* erect, 10-12 inches high. *Lycopodium pinifolium.* Kaulf. Enum., p. 7.

In the fissures of rocks on the summit of Table Mountain (Bergius., Chamisso, Zeyher, etc.) *v. v.* and *s.*

156. *Lycopodium clavatum.* Lin. *Leaves* nerveless, squarrose, incurved, hair-pointed; *spikes* in pairs, cylindrical, stalked; their *bracts* or scales ovate-acuminate, eroso-dentate. *Stem* creeping, long; *branches* ascending. Willd. Enum. Plant., vol. 5, p. 16. Schkuhr. Icon. Filic., tab. 162.

In damp, shady places on the mountains of Hottentot's Holland, and near Bethel, Kaffraria (Zeyher) *v. s.*

157. *Lycopodium verticillatum.* Lin. *Leaves* whorled, linear-lanceolate, acuminate, patent, quite entire, smooth. *Stem* dichotomous or twice 2-partite; *capsules* axillary. Willd. Sp. Plant., vol. 5, p. 48.

In shady localities in Makazan's country, Natal. (Plant.)

158. *Lycopodium rupestre.* Lin. *Leaves* scattered, imbricated, linear-lanceolate, ciliate, hair-pointed at the apex; *spikes* solitary, sessile, terminal, erect, quadrangular; *scales* keeled, 2-lobed at base; *capsules* kidney-shaped. *Stem* creeping, branchy. Willd. Enum. Plant., vol. 5, p. 30. Schkuhr. Icon. Filic., tab. 165.

Between rocks on the banks of the Omzamcaba River, Natal. (Drege. Plant.) *v. s.*

159. *Lycopodium setaceum.* Hamilt. *Leaves* whorled, linear, bristly at top, curved; *capsules* axillary, reniform. *Stem* slender, dichotomously branched, creeping. Kze. Linnæa., vol. 18, p. 113

Parasitical on trees in the forests of Natal, between the Omfondi and Togela rivers. (Gueinzius.) *v. s.*

160. *Lycopodium Kraussianum.* Kze. *Leaves* remote, oblong, acuminated, obliquely cordate and auricled at base, scabrid, margined, ciliated; *stipules* sub-erect lanceolate-ovate, falcate, rounded at base. *Stem* creeping, branchy; *branches* rather erect, dichotomous. Kze. Linnæa., vol. 18, p. 114.

In the forests of the Tzitsikamma (Dr. Krauss.), near Chakaa's Kraal, Natal (Gueinzius.) *v s.*

LIV. PSILOTUM. SW. (1 Species.)

161. *Psilotum triquetrum.* Sw. *Stem* angular, smooth, dichotomously branched about its middle; *branches* 3-cornered, acuminate, fructiferous; *leaves* sessile, alternate, remote, acute, very remote; those subtending the fruit deeply 2-partite; *spores* kidney-shaped. *Bernhardia dichotoma.* Willd. Schkuhr., Icon. Filic., tab. 165, b. Hook. genera Filic.. tab. 87.

Parasitical on trees in the forests of Natal. (Gueinzius.) *v. s.*

APPENDIX.

DOUBTFUL AND DISCARDED SPECIES.

1. *Aspidium* (Polystichum?) *stramineum.* Kaulf. *Fronds* 2-pinnate; *pinnæ* oblong-trapeziform, mucronate, serrate, auricled at base, rather hairy below; *sori* scattered, placed near the margin; *rachis* and *stipes* very scaly. *K. Sprengel,* in Linn. Syst. Veget., vol. 4, p. 105.

2. *Aspidium* (Lastrea?) *oppositum.* Kaulf. *Fronds* 3-pinnate or supra-decompound, lower *pinnæ* opposite, 2-pinnatifid, smooth; their *pinnules* one-sided, oblong-lanceolate, decurrent, confluent at base; tertiary *inferior pinnæ* ovate-oblong, entire; *terminal ones* rather acute, sub-dentate. *Sori* solitary; *rachis* sparingly scaly. *Sprengel.* l. c., p. 108.

3. *Asplenium flexuosum.* Schrad. *Fronds* pinnate; *pinnæ* ovate-lanceolate, acute, pinnatifid; *segments* lanceolate-cuneate, truncate, 2-dentate at the apex; *lower ones* deeper incised; *uppermost* confluent; *rachis* flexuose, glabrous. *Schlecht.* Adumb., p. 29. *(A. discolor. Nob.?)*

Locality not recorded. (Rev. Mr. Hesse.)

4. *Pteris cuspidata.* Thbg. *Fronds* pinnate, smooth; *pinnæ* alternate on very short stalks, lanceolate, cuspidate. serrate, straight-veined. *Stipes* half-round, doubly channelled, glabrous, 12 inches high. Thbg. Flor. Cap., p. 732.

5. *Pteris tabularis.* Thbg. *Fronds* pinnate, glabrous; *pinnæ* alternate, sessile, approximate, lanceolate, veiny; *lower ones* short; *terminal pinnæ* 3-5 fid. *Stipes* half-round, channelled, smooth. *Caudex* clothed with long ferruginous scales. Thbg. Flor. Cap., p. 732.

In moist places on Table Mountain. (Thunberg.)

6. *Pteris* (Allosorus?) *involuta.* Sw. *Fronds* 2-pinnate, oblong-lanceolate; *pinnæ* opposite, oblong, short; *pinnules* alternate, adnate, subcordate-ovate, blunt; *terminal one* 3-lobed or hastate, all of them entire, subinvolute, glabrous. *Fructification* marginal, continuous. *Stipes* round, black-purple, glossy, sparingly paleaceous. Schlecht. Adumb., p. 46.

7. *Onychium capense.* Kaulf. This Fern had been mistaken for a South African plant by former botanists. It is, in fact, a native of Japan, and described as *Trichomanes japonicum* by Thunberg. *Onychium japonicum.* Kze.

8. *Dicksonia anthriscifolia.* Kaulf. *Fronds* 3-pinnate, ample spreading; *pinnæ* ovate-oblong, pinnatifid nearly to the costa; *segments* oval-oblong, obtuse, dentate, soriferous in the axils of the teeth; *rachis* glabrous; *costa* and *veins* slightly hairy. Hook. Spec. Filic., vol. 1, p. 79, tab. 27 B. Kze. Linnæa., vol. 10, p. 545. *Cheilanthes anthriscifolia* (Willd?) *Lonchitis anthriscifolia.* Bory. (Perhaps identical with *Hypolepis anthriscifolia.* Presl.)

Locality unknown. (Bergius.)

9. *Adiantum thalictroides.* Willd. *Fronds* 3-4-pinnate; *upper pinnules* stalked, semi-orbicular, cuneate-subtruncate, slightly lobed; *lobes* emarginate, soriferous; *involucres* kidney-shaped. *Stipes* roundish, smooth, black-purple, glossy. Schlecht. Adumb., p. 53. (Probably a variety of *A. æthiopicum.* Lin.)

On the north side of Table Mountain. (Bergius.)

10. *Adiantum rotundatum.* Kze. *Fronds* pinnate, linear-lanceolate, smooth; *pinnæ* alternate, stalked, approximate, transversely-oblong, subfalcate, blunt; *terminal ones* small, obovate, truncate at base; *upper edge* and apex inciso-lobate; *lobes* obtuse, toothed at the top; *fertile ones* incised; *involucres* large, reniform; the base of the glabrous *stipes* and the *rachis* chaffy. Hook. Spec. Filic., vol. 2, p. 53, Kze. Linnæa, vol. 10, p. 528.

Locality unknown.

11. *Polypodium argentatum.* Jacq. *Frond* 2-pinnatifid, smooth, silvery at the underside; *pinnæ* alternate, lanceolate, pinnate at the base; *segments* lance-shaped, subdentate, elongated. *Sori* clustered in the middle of the disk. *Sprengel.* Lin. System Vegetab., vol. 4, p. 56.

12. *Polypodium tomentosum.* Thouars. *Fronds* 2-pinnatifid and, as well as the *stipes,* shaggy; *pinnæ* alternate, lanceolate; *lobes* oval, blunt, subcrenate. *Sori* in one single row on each side of the midrib. Spreng. l. c., p. 59. (Could this be *Polypodium Bergianum.* Schlecht?)

13. *Vittaria* (Tænitis?) *acrostichoides.* Hook. and Grev., *Fronds* stipitate, coriaceous, lanceolate, blunt; *fertile ones* linear. *Sori* submarginal. Hook. and Grev. Icon. Filic., tab. 186. Kunze Linn., vol. 10, p. 528. (*Pteropsis angustifolia.* Desv.?)

Found somewhere in the colony; locality however, unknown. (Rev. Mr. Thom, Caledon?)

14. *Hymenophyllum flabellatum.* Labil. *Fronds* flaccid, curved, ovate or oblong, acuminate, pinnate; *pinnæ* sharp-pointed, pinnatifid; the *lower segments* subflabellate, all of them blunt or emarginate. *Involucres* terminal, nearly orbicular; *valves* entire. *Stipes* round, smooth. Hook. Spec. Filic., vol. 1, p. 111. Kaulfuss in Linnæa., vol. 6, p. 187.

15. *Lycopodium ambiguum.* Schrad. *Leaves* arranged in 6 or 8 rows, scattered, linear-lanceolate, subfalcate, acute, quite entire, imbricated, patent. *Stems* simple, ascending from the base. Schlecht. Adumb., p. 8.

Habitat not known. (Rev. Mr. Hesse.)

16. *Lycopodium depressum.* Sw. *Stem* branchy; *branches* very short; *leaves* in a double row, alternate, ovate, acute, obsoletely toothed, patent; *stipules* leaflike, ciliated. *Spikes* sessile, leafy, oblong. Schlecht. Adumb., p. 8. Spreng. Lin. Syst. Veget. vol. 4, p. 17.

In conclusion, we have to notice a very singular plant, which, for some time, had been mistaken for a Fern. We allude to the *Lomaria eriopus* of Kunze., mentioned in the Linnæa., vol. 13, p. 152, and vol. 18, p. 116. It does not belong, however, to the Filical tribe, but to the natural order of *Cycadeæ*, and has been named by Mr. Moore in honour of the late Dr. Stanger, Surveyor-General of Natal. Cf. Hooker's Jour. of Bot., and Kew Gard. Miscellany, v. 5, p. 228.

Stangeria paradoxa. T. Moore. (l. c.) *Stem* simple, erect, 6-8 inches high, without scars. *Frond* single, pinnate, coriaceous. *Stipes* stiff, smooth, 2 feet long, sprinkled with numerous minute dots, and clothed with white shag at its lower extremity. *Pinnæ* opposite, sessile, lanceolate, marginate, very veiny, obtuse, unequal at base and decurrent on the inferior side; *lowermost pinnæ* subpetiolate, patent, all of

them slightly waved, reflexed, and obsoletely toothed at the edges; *midrib* stout, rigid, prominent on both surfaces; *veins* divergent, parallel, forked once or twice near the costa. *Rachis* doubly channelled at the upper extremity.

Flowers unisexual, without either calyx or corolla, and collected in stalked, terminal, resiniferous cones; *peduncle* round, furrowed, spirally twisted, tomentose. *Male cone* 3½ inches long and two inches thick, formed of numerous imbricated, rigid scales which bear on their lower or inner side innumerable, irregularly grouped *anthers* or one-celled pollen-cells which are longitudinally split. *Scales* broad, 3-angular, connate and appressed at base, blunt, serrato-crenate at the margin, smooth on the inner, densely clothed with thick fulvous felt on the outer surface.

Female cone oblong-ovate, broad, 3 inches long, 4 inches in circumference. *Scales* like those of the male plant, but larger, concave within, saccate, and perforated on each side of the base by a small roundish aperture or sinus, which is destined for the insertion of the ovules. Ripe fruit hitherto unknown.*

* The description of the female cone was drawn from an immature specimen. "I find it impossible," says Mr. Plant (who sent it from Natal) "to preserve the female cones if suffered to reach a larger size on the plant. The process of ripening goes on till the whole falls to pieces."

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